COSEWIC Annual Report

presented to

The Minister of the Environment

and

The Canadian Endangered Species Conservation Council (CESCC)

from

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

2009 - 2010

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

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EXECUTIVE SUMMARY

Under Canada's Species At Risk Act (SARA), the foremost function of COSEWIC is to "assess the status of each wildlife species considered by COSEWIC to be at risk and, as part of the assessment, identify existing and potential threats to the species".

During the past year, COSEWIC held two Wildlife Species Assessment Meetings and reviewed the status of 79 wildlife species (species, subspecies, populations). During the meeting of November 2009, COSEWIC assessed or reviewed the classification of the status of 28 wildlife species. COSEWIC assessed or reviewed the classification of an additional 51 wildlife species (species, subspecies and populations) during their April 2010 meeting.

For species already found on Schedule 1 of SARA, the classification of 32 species was reviewed by COSEWIC and the status of the wildlife species was confirmed to be in the same category (extirpated - no longer found in the wild in Canada but occurring elsewhere, endangered, threatened or of special concern).

The wildlife species assessment results for the 2009-2010 reporting period include the following:

Extirpated	6
Endangered:	39
Threatened:	16
Special Concern:	17
Data Deficient:	1

This report transmits to the Minister the status of 46 species newly classified as extirpated, endangered, threatened or of special concern, fulfilling COSEWIC's obligations under SARA Section 24 and 25. A full detailed summary of the assessment for each species and the reason for the designation can be found in Appendix I of the attached report.

Since its inception, COSEWIC has assessed 602 wildlife species in various risk categories, including 262 Endangered, 151 Threatened, 166 Special Concern and 23 Extirpated. In addition, 13 wildlife species have been assessed as Extinct. Also, to date, 46 wildlife species have been identified by COSEWIC as Data Deficient and 166 wildlife species were assessed as Not at Risk.

This year has been a particularly productive year for COSEWIC's Aboriginal Traditional Knowledge (ATK) Subcommittee. In April 2010 COSEWIC approved the *Aboriginal Traditional Knowledge Process and Protocol Guidelines*, providing clear and agreed principles for the gathering of Aboriginal Traditional Knowledge to carry out COSEWIC functions as required under Section 15(2) of SARA (See Appendix III of the attached report). We are grateful for the rich and enthusiastic contribution made by community elders and experts in helping the ATK Subcommittee prepare the ATK protocols.

ITEM I – COSEWIC ACTIVITIES

1. Wildlife Species Assessment Meetings

Autumn, 2009

Date: November 23 - 27, 2009
Location: Ottawa, Ontario

Attendance:

Members – 40 members/alternates
Secretariat Staff – 10
Observers – 16 (1 Nature Canada, 2 Canadian Wildlife Federation, 1 NatureServe Canada, 3 Canadian Wildlife Service, 1 Parks Canada, 1 Province of Quebec, 1 professor, Department of Biology, University of Toronto, 1 student, University of Guelph, 4 students, McGill University, 1 student, University of Ottawa)
Presenter: 1 (Michael D'Eça, Legal Advisor – Aboriginal Traditional Knowledge and SARA)

Spring, 2010

Date: April 25 - 30, 2010
Location: Victoria, British Columbia
Hosted by the Government of British Columbia.

Attendance:

Members - 44

Secretariat Staff – 10

Observers – 41 (1 Canadian Wildlife Federation, 1 World Wildlife Fund Canada, 1 Bird Studies Canada, 1 Amec Earth and Environmental , 7 SSC members, 1 Canadian Wildlife Service/SSC member, 12 Fisheries & Oceans Canada, 1 Parks Canada, 2 Government of the Northwest Territories, 2 students, University of British Columbia and 11 Government of British Columbia, 1 Government of Birtish Columbia/SSC member.

Presenter – 1 (Dr. Darren Bender, professor, Department of Geography, University of Calgary – presentation on Prairie Sand Dunes)

Teleconferences:

Following each of the above-noted COSEWIC Wildlife Species Assessment Meetings, the Chair of COSEWIC communicated with the Canadian Wildlife Directors Committee (CWDC) via teleconference, as well as with representatives of the Wildlife Management Boards (WMBs) and members of the National Aboriginal Council on Species at Risk (NACOSAR)

2. Summary Results of the Wildlife Species Assessment Meetings

Section 15 (1) of the Species at Risk Act (SARA) states: "The functions of COSEWIC are to (a) assess the status of each wildlife species considered by COSEWIC to be at risk and, as part of the assessment, identify existing and potential threats to the species and
(i) classify the species as extinct, extirpated, endangered, threatened or of special concern,
(ii) indicate that COSEWIC does not have sufficient information to classify the species, or
(iii) indicate that the species is not currently at risk".

In November 2009, COSEWIC assessed or reviewed the classification of the status of 28 wildlife species (species, subspecies and populations) based on 27 Status Reports, two of which were unsolicited reports.

The wildlife species assessment results include the following:

Extirpated	3
Endangered:	13
Threatened:	7
Special Concern:	5

Classification was reviewed by COSEWIC and the status of the wildlife species was confirmed to be in the same category for 11 wildlife species classified as extirpated (no longer found in the wild in Canada but occurring elsewhere), endangered, threatened or of special concern on Schedule 1 of the *Species at Risk Act* (SARA):

Grey Whale (Atlantic population), Dwarf Wedgemussel, Eskimo Curlew, Mountain Plover, Greater Prairie–Chicken, Savannah Sparrow *princeps* subspecies, Pink Milkwort, Virginia Goat's–rue, Rigid Apple Moss, Yellow Rail, Sharp–tailed Snake.

Classification was reviewed by COSEWIC for one wildlife species previously classified as of special concern on Schedule 3 of the SARA, resulting in a change of status to a higher risk category. COSEWIC assessed the Bicknell's Thrush as threatened.

With the transmission of this report, COSEWIC provides our assessments of 17 wildlife species newly classified as extirpated, endangered, threatened and of special concern to the Minister of Environment so that he can consider whether to recommend to the Governor in Council (GIC) that they be added to Schedule 1 of the SARA:

Bicknell's Thrush, Swift Fox, Redroot, Bert's Predaceous Diving Beetle, Bogbean Buckmoth, Coast Manroot, Darkblotched Rockfish, Pale-bellied Frost Lichen, Quillback Rockfish, Northern Barrens Tiger Beetle, Chestnut–collared Longspur, Atlantic Mud–piddock, Wallis' Dark Saltflat Tiger Beetle, Vole Ears, Basking Shark, Eastern Sand Darter (Ontario populations), Eastern Sand Darter (Quebec populations).

In April 2010, COSEWIC assessed or reviewed the classification of the status of 51 wildlife species (species, subspecies and populations) based on 41 Status Reports, four of which were unsolicited reports.

The wildlife species assessment results include the following:

Extirpated:	3
Endangered:	26
Threatened:	9
Special Concern:	12

In addition, 1 wildlife species was examined and found to be Data Deficient.

Classification was reviewed by COSEWIC and the status of the wildlife species was confirmed to be in the same category for 21 wildlife species classified as extirpated, endangered, threatened or of special concern on Schedule 1 of SARA:

Acadian Flycatcher, Whooping Crane, Flammulated Owl, Cucumber Tree, Eastern Mountain Avens, Eastern Prickly Pear Cactus, Dense Blazing Star, Karner Blue, Monarch, Coastrange Sculpin (Cultus population), Paxton Lake Benthic Threespine Stickleback, Paxton Lake Limnetic Threespine Stickleback, Great Plains Toad, Sprague's Pipit, Rayed Bean, Northern Riffleshell, Frosted Elfin, Western Brook Lamprey, Morrison Creek Population, Island Marble, Vananda Creek Benthic Threespine Stickleback, Vananda Creek Limnetic Threespine Stickleback.

Classification was reviewed by COSEWIC for two wildlife species previously classified as of special concern on Schedule 3 of the SARA. The status of the Oldgrowth Specklebelly Lichen was confirmed to be in the same category, and the status of the Umatilla Dace changed to a higher risk category. COSEWIC assessed the Umatilla Dace as threatened.

COSEWIC hereby forwards the COSEWIC assessments for 29 wildlife species newly classified as extirpated, endangered, threatened and of special concern to the Minister of Environment so that he can consider whether to recommend to the GIC that they be added to Schedule 1 of SARA:

Fowler's Toad, Queensnake, Lewis's Woodpecker, Western Blue Flag, Wavy–rayed Lampmussel, Tubercled Spike–rush, Laura's Clubtail, Rusty–patched Bumble Bee, Four–leaved Milkweed, Victoria's Owl–clover, Virginia Mallow, Whitebark Pine, Bobolink, Threaded Vertigo, Loggerhead Sea Turtle, Rocky Mountain Sculpin (Westslope populations), Acadian Redfish (Atlantic population), Acadian Redfish (Bonne Bay population), Deepwater Redfish (Northern population), Deepwater Redfish (Gulf of St. Lawrence – Laurentian Channel population), Spiny Dogfish (Atlantic population), Yellowmouth Rockfish, Atlantic Cod (Laurentian North population), Atlantic Cod (Newfoundland and Labrador population), Atlantic Cod (Arctic Lakes population), Atlantic Cod (Laurentian South population), Atlantic Cod (Southern population), Umatilla Dace, Oldgrowth Specklebelly Lichen.

Appendix I provides the results of COSEWIC's assessment of the status of each species including the reasons for each designation

As of April 2010, the COSEWIC assessment results include 602 wildlife species at risk in various categories, including 262 Endangered wildlife species, 151 Threatened wildlife species, 166 wildlife species of Special Concern and 23 Extirpated wildlife species. In addition, COSEWIC has designated 13 wildlife species as Extinct.

As of April, 2010, a total of 46 wildlife species have also been designated as Data Deficient and 166 have been assessed and were assigned Not at Risk status.

See Appendix II for the COSEWIC Press Releases from the November 2009 and April 2010 Wildlife Species Assessment Meetings.

3. Emergency Assessments:

Section 29 of SARA provides for the listing of a species based on an imminent threat – an emergency listing. Section 30 (1) of SARA states that COSEWIC is to prepare a status report and confirm the classification of species listed on an emergency basis.

During the period covered in this report COSEWIC did not receive any requests for Emergency Assessment.

4. Regarding Wildlife Species Assessments returned by the Governor in Council (GIC) to COSEWIC for further information or consideration:

In June 2006, the status assessments of six aquatic species were returned to COSEWIC in accordance with section 27(1.1c) of SARA. COSEWIC provided a response to the Minister of the Environment to these species referrals in December 2006. To date, listing decisions are outstanding for some of these species, including Bocaccio (assessed November 2002) and Cusk (assessed May 2003).

5. Wildlife Species Selected for Status Report Preparation

Section 15.1 (b) of SARA states that one of the functions of COSEWIC is to "determine when wildlife species are to be assessed, with priority given to those more likely to become extinct".

Section 24 of SARA states that "COSEWIC must review the classification of each species at risk at least once every 10 years,..."

Following COSEWIC's process for determining those wildlife species for which status reports will be commissioned, the following wildlife species from COSEWIC's Species Specialist Subcommittee candidate lists were chosen by the Committee for status report commissioning. In addition, wildlife species requiring a review of classification as per Section 24 of SARA were identified.

Species for which Status Reports or Status Appraisal Summaries will be commissioned in autumn 2010:

SPECIES COMMON NAME	SPECIES SPECIALIST SUBCOMMITTEE
1. Pilose Braya	Vascular Plants
2. *Seligeria careyana*	Mosses & Lichens (Mosses)
3. Shortface Lanx	Molluscs
4. Nahanni Aster	Vascular Plants
5. Haida Gwaii Slug	Molluscs
6. Threehorn Wartyback	Molluscs
7. Bank Swallow	Birds
8. Ashton Cuckoo Bumble Bee	Arthropods
9. Western Branded Skipper	Arthropods
10. Waterfan	Mosses & Lichens (Lichens)
11. Lilliput	Molluscs
12. Spiked Saxifrage	Vascular Plants
13. Wandering Salamander	Amphibians & Reptiles (Amphibians)
14. Eastern Wood-Pewee	Birds
15. Wood Thrush	Birds

Species for which Status Reports or Status Appraisal Summaries will be commissioned in autumn 2011:

SPECIES COMMON NAME	SPECIES SPECIALIST SUBCOMMITTEE
1. *Crossidium seriatum*	Mosses & Lichens (Mosses)
2. Audouin's Night-stalking Tiger Beetle	Arthropods
3. *Gollania turgens*	Mosses & Lichens (Mosses)
4. Broad-banded Forestsnail	Molluscs
5. Eastern Box Turtle	Amphibians & Reptiles (Reptiles)
6. Cassin's Auklet	Birds
7. Red-necked Phalarope	Birds
8. *Brachydontium olympicum*	Mosses & Lichens (Mosses)
9. Rainbow Trout (Alberta populations)	Freshwater Fishes
10. Atlantic Walrus	Marine Mammals
11. A pholcid cellar spider	Arthropods
12. Griscom's Arnica	Vascular Plants
13. Yukon Podistera	Vascular Plants
14. Tweedy's Lewisia	Vascular Plants
15. Western Grebe	Birds

6. Annual Subcommittee Meetings:

ATK Subcommittee:

The Aboriginal Traditional Knowledge (ATK) Subcommittee finalized the *COSEWIC ATK Process and Protocol Guidelines* (**Appendix III** of this report). These were approved by COSEWIC at its Spring 2010 Species Assessment Meeting and have been incorporated into COSEWIC's Operations and Procedures Manual.

An Aboriginal Traditional Knowledge Strategic Planning Workshop was held in Ottawa in March, 2010 to develop a short and long term plan on how to deal with upcoming assessments of both new and previously-assessed species where ATK is relevant. The workshop was attended by the Co-chairs and members of the ATK Subcommittee, NACOSAR, the Chair of COSEWIC and members of COSEWIC from Parks Canada and Fisheries & Oceans Canada, COSEWIC Secretariat Manager and ATK Coordinator as well as a facilitator. Cynthia Wright, Acting Assistant Deputy Minister, Environmental Stewardship Branch, Environment Canada, was also present for a portion of the session.

In anticipation of the assessment of Dolly Varden trout (northern form) by COSEWIC in November 2010, a Workshop to review the ATK gathered on that species in the Inuvialuit Settlement Region and the Gwich'in Settlement Area took place in Inuvik in April, 2010.

A project with four Maritime aboriginal organizations to conduct case studies involving the collection of ATK information on Atlantic Salmon via interviews with off-reserve ATK holders was initiated.

Species Specialist Subcommittees:

Species Specialist Subcommittee (SSC) meetings take place annually in different locations in Canada or by teleconference once or twice a year. The primary goals of these meetings are to discuss and make recommendations on species status, review potential candidate species and identify priority species for assessment. During the face-to-face meetings, observers are invited to attend and sometimes a public information session takes place.

In addition, Species Specialist Subcommittees may discuss the results of recent COSEWIC Wildlife Species Assessment Meetings, results of public calls for bids for the preparation of COSEWIC status reports, and results of public calls for membership. The subcommittees will also provide orientation to their new members, discuss special projects and plans, and receive an update on COSEWIC Operations and Procedures.

Currently, COSEWIC has established 10 Species Specialist Subcommittees (SSCs), each led by two expert Co-chairs. These are the:

Amphibians & Reptiles Specialist Subcommittee

Arthropods Specialist Subcommittee

Birds Specialist Subcommittee

Freshwater Fishes Specialist Subcommittee

Marine Fishes Specialist Subcommittee

Marine Mammals Specialist Subcommittee

Molluscs Specialist Subcommittee

Mosses & Lichens Specialist Subcommittee

Terrestrial Mammals Specialsit Subcommittee

Vascular Plants Specialist Subcommittee

In addition to their regular business, a number of subcommittees have undertaken some special projects in order to better serve COSEWIC's core mandate of assessing the status of wildife in Canada.

The Arthropods SSC initiated work designed to provide more information on the cause of the widespread decline of Coccinellids (which are commonly known as ladybugs) in Canada. It will streamline much of the required field work and other research necessary to complete status reports on several native species. Work was also initiated to develop a comprehensive, prioritized candidate list of Crustaceans and related groups at risk in Canada.

Following the completion and approval of the Lake Whitefish Designatable Units Project, the Freshwater Fishes SSC is currently using the report to plan future status reports for this species complex. The SSC also refined its definitions for National Freshwater Biogeographic Zones and plans to present a new proposed structure at the November, 2010 Species Assessment Meeting.

The Molluscs SSC received a report on developing a prioritized candidate species list of terrestrial molluscs of Ontario and Quebec. Additional work will be undertaken so that this report can be used to aid the SSC in updating its candidate species list.

Simiarlly, the Mosses & Lichens SSC continued their work to update the lichen prioritization list and to create and update a lichen prioritization database.

As a means to support future status reports for the Caribou, the Terrestrial Mammals SSC initiated the production of a report on Caribou designatable units. The first draft of the report was provided in April, 2010 and, following review by the SSC, will be provided for extensive jurisdictional and expert peer review. It is anticipated that the provisional report will be provided to COSEWIC early in 2011.

The Vascuar Plants SSC, with assistance from NatureServe and some regional Conservation Data Centres, reviewed all vascular plant taxa not presently listed as secure in Canada. A new two-tiered candidate list was developed with a total of 528 taxa. Each was further ranked using COSEWIC criteria to prioritize the list and the vascular plant candidate list was revised accordingly.

COSEWIC is extremely grateful for the important work of the SSC members who provide their time and expertise on a volunteer basis.

7. Update on Progress of Working Groups within COSEWIC

Prairie Sand Dunes Ecosystems Working Group:

A presentation was given to COSEWIC during their April, 2010 meeting, by Dr. Darren Bender of the Department of Geography, University of Calgary, showing results of historical and current analysis of prairie sand dune habitats. This information is valuable to COSEWIC for the purpose of prioritizing and informing status reports on sand dune dependent species.

Instructions to Status Report Writers Working Group:

Some modifications were made to the Appendix E4 and F1 of the Operations & Procedures Manual (Guidelines for Naming Wildlife Species)

Criteria Working Group:

Section 15.1 of SARA states that one of the functions of COSEWIC is to "develop and periodically review criteria for assessing the status of wildlife species and for classifying them and recommend the criteria to the Minister and the Canadian Endangered Species Conservation Council."

COSEWIC's assessment criteria is based on the World Conservation Union's (IUCN) Red List criteria. COSEWIC is reviewing recent revisions to the guidelines for the application of the IUCN assessment criteria and assessing their implications to COSEWIC criteria. With regard to the IUCN Threats Classification System, members are exploring the utility of using a threats calculator with upcoming assessments.

Manipulated Populations Working Group:

Revisions to the COSEWIC's Guidelines for Manipulated Populations (Appendix E7 of the COSEWIC Operations and Procedures Manual) were approved in April 2010.

Press Release Working Group:

A permanent Press Release Working Group is tasked at each Wildlife Species Assessment Meeting with coordinating and preparing the Press Releases issued by COSEWIC. The outcomes of this working group can be found in **Appendix II**.

Marine Ecozones Working Group:

Four options to aid in the identification of designatable units were presented and each were considered by COSEWIC, including the option that no marine ecozones be accepted at this time. The latter option was agreed upon. It was suggested, however, that in reports on marine species that the report writer include an already-referenced map.

8. Election – Chair of COSEWIC

Dr. Jeffrey Hutchings ended his second term as Chair of COSEWIC at the end of the April, 2010 Species Assessment Meeting. Following procedures set out in the COSEWIC Operations and Procedures Manual, a nomination Committee was struck in April, 2009, in preparation for the election of a new Chair of COSEWIC. Dr. Sherman Boates, member from Nova Scotia, chaired the Selection Committee comprised of several members of COSEWIC. A number of nominations were received but subsequently all nominees withdrew with the exception of one nominee, Dr. Marty Leonard, Co-chair, Birds Specialist Subcommittee.

At the Species Assessment Meeting in April, 2010, Dr. Sherman Boates presented Dr. Marty Leonard as the candidate for the position of Chair of COSEWIC. He spoke about her outstanding credentials including her leadership experience, excellent people skills and also commented on her record of providing very crisp, succinct and well-organized presentations on bird species assessments at COSEWIC meetings. The members voted and, following the election, Dr. Leonard was proclaimed Chair of COSEWIC for a two-year term of office to take effect May 1, 2010.

Dr. Leonard thanked the membership for electing her as Chair and expressed appreciation to the former Chair and others for their offers of support. As well both current and former members of COSEWIC recognized Dr. Jeffrey Hutchings for his outstanding contribution to COSEWIC as Chair since 2006.

ITEM II – COSEWIC MEMBERSHIP

Section 16 of SARA states that (1) COSEWIC is to be composed of members appointed by the Minister after consultation with the Canadian Endangered Species Conservation Council and with any experts and expert bodies, such as the Royal Society of Canada, that the Minister considers to have relevant expertise. (2) Each member must have expertise drawn from a discipline such as conservation biology, population dynamics, taxonomy, systematics or genetics or from community knowledge or aboriginal traditional knowledge of the conservation of wildlife species. (3) The members are to be appointed to hold office for renewable terms of not more than four years.

Membership Changes:

Members from Jurisdictions (Provincial/Territorial/Federal)

As per COSEWIC Operations and Procedures Manual, nominations for incoming members from Jurisdictions are submitted directly to the Minister of the Environment with a copy provided to the Chair of COSEWIC.

Co-chairs of Species Specialist Subcommittees / Non-government Science Member

Between 20 January and 17 February, 2010 calls for eight co-chair positions and one non-government science member position on COSEWIC were posted on the COSEWIC public website with notifications of those calls being widely distributed. Selection committees were struck and applications were scrutinized following procedures for member selection as set out in the Operations & Procedures Manual of COSEWIC. Elections took place and as a result, COSEWIC recommended the following for membership on the Committee in the positions and for the terms indicated.

With regard to the Amphibians & Reptiles Specialist Subcommittee, a previous call failed to attract applicants, therefore, a second call was posted for the position that was vacated as a result of the Ministerial decision to not appoint Dr. David Green. As the term of Dr. Ronald J. Brooks would end 31 December, 2010, the Chair of COSEWIC asked Dr. Brooks (who did not wish to apply for a four-year term of office) if he would be willing to serve another year to help mentor the new Co-chair, to which he agreed. COSEWIC thus elected to nominate Dr. Brooks for appointment as Co-chair of the Amphibians & Reptiles Specialist Subcommittee for a further one-year term.

With regard to the Arthropods Specialist Subcommittee, the call for membership failed to attract any applicants to the position of Co-chair. Dr. Laurence Packer, who did not re-apply for the position for personal reasons, was asked by the Chair of COSEWIC if he would be willing to continue for a one-year period to which he agreed. COSEWIC elected to nominate Dr. Packer for appointment as Co-chair of the Arthropods Specialist Subcommittee for a further one-year term.

Canadidates presented for appointment as COSEWIC Members:

NAME	POSITION	NEW / NOMINATED FOR REAPPOINTMENT	PROPOSED TERM
Dr. Ronald J. Brooks	Co-chair, Amphibians & Reptiles SC	Nominated for Reappointment	January 1, 2011- December 31, 2011
Dr. Kristiina Ovaska	Co-chair, Amphibians & Reptiles SC	New	January 1, 2011 – December 31, 2014
Dr. Laurence Packer	Co-chair, Arthropods SC	Nominated for Reappointment	January 1, 2011, December 31, 2011
Dr. Marty L. Leonard	Co-chair, Birds SC	Nominated for Reappointment	January 1, 2011 – December 31, 2014
Dr. John Reynolds	Co-chair, Marine Fishes SC	New	January 1, 2011- December 31, 2014
Dr. Gerald L. Mackie	Co-chair, Molluscs SC	New	January 1, 2011 – December 31, 2014
Dr. David Richardson	Co-chair, Mosses & Lichens SC	New	January 1, 2011- December 31, 2014
Dr. Graham Forbes	Terrestrial Mammals SC	New	January 31, 2011 – December 31, 2014
Dr. Jeannette Whitton	Co-chair, Vascular Plants	New	January 1, 2011 – December 31, 2014
Dr. Tim Birt	Non-government Science Member	New	January 1, 2011 – December 31, 2014

See Appendix IV for the biosketches of the nominees for appointment on COSEWIC.

For a current list of members on COSEWIC, please see the COSEWIC website.
http://www.cosewic.gc.ca/eng/sct6/sct6_4_e.cfm

ITEM III – COSEWIC OPERATIONS AND PROCEDURES

Section 19 of SARA states that COSEWIC "may make rules respecting the holding of meetings and the general conduct of its activities."

COSEWIC bases the conduct of its activities on a thorough COSEWIC Operations and Procedures Manual that is reviewed between each Species Assessment Meeting by COSEWIC's Operations and Procedures Working Group. Any necessary changes are identified and provided to the Committee for their approval. During this reporting period, the COSEWIC Operations and Procuedures Manual was updated to reflect some changes in COSEWIC's procedures. Most notable are:

- Changes to COSEWIC Guidelines for Manipulated Populations (Appendix E7 of the Manual)
- COSEWIC ATK Process and Protocol Guidelines (Appendix F11 of the Manual)

- Minor changes to the COSEWIC Assessment Process, Categories and Guidelines Appendix (Appendix E3 of the Manual)

Section 15(2) of SARA states that "COSEWIC must carry out its functions on the basis of the best available information on the biological status of a species, including scientific knowledge, community knowledge and aboriginal traditional knowledge."

As noted earlier, during the November, 2009 Species Assessment Meeting, COSEWIC approved the *ATK Process and Protocol Gudielines* in principle which have been incorporated into the COSEWIC Operations & Procedures Manual as a new Appendix (Appendix F11). COSEWIC approved the final version with minor edits in April, 2010.

Appendix III of this report includes the full text of the agreed *ATK Process and Protocol Guidelines*. This document represents a culmination of an extraordinary amount of work and time by Co-chairs and members of the ATK Subcommtitee, and elders across the country who participated in many meetings, workshops and teleconferences.

Given the significant workload anticipated to implement the new ATK protocols, COSEWIC has also approved guidelines for the remuneration of Aboriginal Traditional Knowledge Subcommittee members. These are being provided to Environment Canada for consideration and approval so that they may be put into practice.

ITEM IV – TERMS OF REFERENCE

In accordance with Section 20 of SARA, the Minister must provide COSEWIC with any professional, technical, secretarial, clerical and other assistance, and any facilities and supplies, that, in his or her opinion, are necessary to carry out its functions.

Terms of Reference for COSEWIC were modifed to reflect the new Terms of Reference for the COSEWIC Secretariat, which were approved in April 2010. The new Secretariat Terms of Reference clearly set out its role, function and relationship to COSEWC and Environment Canada. These have been approved by COSEWIC and by Environment Canada as represented by the Director General, Canadian Wildlife Service (see attached **Appendix VI**).

Similarly, the Terms of Reference for the Aboriginal Traditional Knowledge Subcommittee were modified to reflect the new ATK protocols (see **Appendix VII** of this report).

ITEM V – COSEWIC COMMUNICATION PLAN

COSEWIC has been encouraged to develop an outreach strategy to explain COSEWIC to Canadians. During the period encompassed by this Report (September 1, 2009 – August 31, 2010), Dr. Jeffrey Hutchings gave the following talks and presentations on the work of the Committee:

- 2 seminars delivered at Memorial University of Newfoundland (October, 2010)
- ATK Strategic Planning Session (March, 2010)
- Nunavut Wildlife Management Board Public Hearing (April, 2010)
- Canadian Wildlife Directors Committee Meetings (October 2009; April 2010)

ITEM VI – WILDLIFE SPECIES STATUS ASSIGNMENTS

Wildlife Species assessed since the last reporting indicating status assigned, reasons for designation (including uncertainties if applicable) and COSEWIC criteria with alphanumeric codes is provided in **Appendix I**.

Status reports which contain the information on which COSEWIC's assessment of the status of the wildlife species is based will be available on the SARA Public Registry at the following address: www.sararegistry.gc.ca

APPENDIX I

COSEWIC Wildlife Species Assessments (detailed version), November 2009*

Results are grouped by taxon and then by status category. The range of occurrence in Canada (by province, territory or ocean) and history of status designation are provided for each wildlife species. Assessment criteria and reason for designation are shown, where applicable**

Mammals

Grey Whale ***Eschrichtius robustus*** **Extirpated**
Atlantic population
Range Atlantic Ocean

Status History
Extirpated before the end of the 1800s. Designated Extirpated in April 1987. Status re-examined and confirmed in May 2000 and November 2009.

Swift Fox ***Vulpes velox*** **Threatened**
Assessment Criteria D1+2

Reason for Designation
This species was extirpated from Canada in the 1930s. Following reintroduction programs in Alberta and Saskatchewan initiated in 1983, they have re-established populations in these areas and in northern Montana. Population numbers and distribution have increased since that time, with the current estimate in Canada having doubled to 647 since the last COSEWIC assessment in 2000. Connectivity between populations has also improved during this time, particularly through northern Montana. Since 2001, population numbers and distribution have remained stable and habitat for this species within Canada appears to be saturated. Most improvement in overall population status can be attributed to populations in Montana, which are still demonstrating increasing trends in numbers and distribution. Deteriorating habitat in Canada and the threat of disease (as seen in other canids) could threaten the continued recovery of this species.

Range AB SK

Status History
Last seen in Saskatchewan in 1928. Designated Extirpated in April 1978. Status re-examined and designated Endangered in April 1998 after successful re-introductions. Status re-examined and confirmed in May 2000. Status re-examined and designated Threatened in November 2009.

Birds

Greater Prairie-Chicken ***Tympanuchus cupido*** **Extirpated**
Assessment Criteria not applicable

Reason for Designation
This species was once an abundant breeder in prairie habitats of Alberta, Saskatchewan, Manitoba and Ontario. New genetic evidence indicates that the species was a native of Canada for the past 9000 years and did not colonize the prairies habitat with European settlement as previously thought. Habitat loss and degradation and hybridization with the Sharp-tailed Grouse contributed to its extirpation from Canada.

Range AB SK MB ON

Status History
Last reported in 1987. Designated Endangered in April 1978. Status re-examined and designated Extirpated in April 1990. Status re-examined and confirmed in May 2000 and in November 2009.

Eskimo Curlew ***Numenius borealis*** **Endangered**
Assessment Criteria D1

Reason for Designation
This bird is a species of shorebird with 100% of its known breeding range in Arctic Canada. Formerly abundant, the population collapsed in the late 1800s, primarily owing to uncontrolled market hunting and dramatic losses in the amount and quality of spring stopover habitat (native grasslands). The population has never recovered, and there have been no confirmed breeding records for over 100 years, nor any confirmed records of birds (photographs/specimens) since 1963. As such, less than 50 years have elapsed since the last confirmed record. However, there are some recent sight records that suggest the possibility that a very small population (fewer than 50 mature individuals) may still persist in remote arctic landscapes. The primary factors limiting recovery are the very low population size, no known chance of rescue from outside populations, and the historic and ongoing conversion of native grasslands on its spring staging areas in Canada and the U.S. and on its wintering grounds in Argentina.

Range YT NT NU AB SK MB ON QC NB PE NS NL

Status History
Designated Endangered in April 1978. Status re-examined and confirmed Endangered in May 2000 and November 2009.

Mountain Plover ***Charadrius montanus*** **Endangered**
Assessment Criteria D1

Reason for Designation
This species is a rare bird of the Canadian prairies which is found in Alberta and Saskatchewan. The population numbers less than 250 individuals with a maximum of 11 individuals counted in one season in Canada. The species is threatened by continuing conversion of native grasslands to croplands, agricultural practices and the management of domestic livestock. The species is of particular concern in much of its range in the United States, limiting future rescue.

Range AB SK

Status History
Designated Endangered in April 1987. Status re-examined and confirmed November 2000 and in November 2009.

Bicknell's Thrush ***Catharus bicknelli*** **Threatened**
Assessment Criteria A4b

Reason for Designation
This species has one of the most restricted breeding ranges among the forest birds of North America. It inhabits the forests of montane and cool coastal zones, as well as high elevation regenerating forests over 600m in Quebec, New Brunswick, Nova Scotia and the northeastern United States. It winters in the Greater Antilles, where the bulk of its population appears to be in the Dominican Republic. Despite the difficulty to adequately monitor the species, all the available indices on trends point to significant declines in population and area of occupancy. Preliminary results from the Maritimes Breeding Bird Atlas project suggest a 40% decline in the area occupied over the last three generations, while the High Elevation Landbirds Program suggests more dramatic declines in the same regions. Recent surveys in Quebec also indicate declines in some locations. While reasons for the decline are unclear, habitat loss on the wintering grounds, management practices such as pre-commercial thinning in regenerating forests and climate change are leading to a reduction of suitable high-elevation habitat.

Range QC NB NS

Status History
Designated Special Concern in April 1999. Status re-examined and designated Threatened in November 2009.

Chestnut-collared Longspur ***Calcarius ornatus*** **Threatened**
Assessment Criteria A2b

Reason for Designation
This species is a native prairie grassland specialist that occurs in Alberta, Saskatchewan and Manitoba. The species has suffered severe population declines since the late 1960's and the results of several surveys suggest that the declines have continued over the last decades albeit at a slower rate. The species is threatened by habitat loss and fragmentation from road development associated with the energy sector.

Range AB SK MB

Status History
Designated Threatened in November 2009.

Savannah Sparrow *princeps* subspecies ***Passerculus sandwichensis princeps*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
This songbird is largely restricted to the sandy dune systems of Sable Island, NS. The population has increased over recent decades and now shows signs of stability because the island has reached carrying capacity. The bird is not prone to human disturbance because the breeding location is well protected. The subspecies is also multi-brooded and currently experiences good nesting success, which confers good reproductive potential to cope with potential catastrophic events. Nevertheless, its breeding range is restricted to a very small area of Canada, and it has a relatively small population. It is also exposed to ongoing threats associated with development of its shoreline wintering habitat in the eastern U.S., and is vulnerable to sea-level rise and increasing frequency and intensity of Atlantic storms that are projected to occur as a result of climate change.

Range NS

Status History
Designated Special Concern in April 1979. Status re-examined and confirmed in May 2000 and in November 2009.

Yellow Rail ***Coturnicops noveboracensis*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
Relatively little is known about this small, secretive rail. It is primarily restricted to shallow, dense, grassy marshes and wet meadows. Most of its breeding range (about 90%) is in Canada. It is relatively uncommon in most areas; populations are most widespread and common in coastal areas of Hudson and James Bay in northern Manitoba, Ontario and Quebec. It winters in shallow marshes that occur in a narrow band extending from Texas to the Carolinas. The species is close to meeting some criteria for Threatened status because of its relatively small population size, compressed wintering range, ongoing threats to breeding and wintering wetland habitats, and evidence for local declines in several parts of its breeding range.

Range NT BC AB SK MB ON QC NB

Status History
Designated Special Concern in April 1999. Status re-examined and confirmed in November 2001 and in November 2009.

Reptiles

Sharp-tailed Snake ***Contia tenuis*** **Endangered**

Assessment Criteria B1ab(iii)+2ab(iii); C2a(i)

Reason for Designation
This tiny snake is confined to a handful of isolated, small populations in southeastern Vancouver Island and the southern Gulf Islands of British Columbia. Most of these populations are threatened by development and may not be viable. Increased search effort since the last assessment has found three previously undiscovered populations. Despite this, it is likely that overall numbers are decreasing and threats continue unabated. Major threats include ongoing development, increasing human populations, off trail recreation, fragmentation by roads and stochastic effects on small populations.

Range BC

Status History
Designated Endangered in April 1999. Status re-examined and confirmed in October 1999 and November 2009.

Fishes

Eastern Sand Darter ***Ammocrypta pellucida*** **Threatened**

Ontario populations

Assessment Criteria B2ab(i,iii,iv,v)

Reason for Designation
This species prefers sand bottom areas of lakes and streams in which it burrows. There is continuing decline in the already small and fragmented populations; four (of 11) have probably been extirpated. The extent of occurrence of this species in Ontario is approximately half of what it was in the 1970s as a result of habitat loss and degradation from increasing urban and agricultural development, stream channelization and competition with invasive alien species.

Range ON

Status History
The species was considered a single unit and designated Threatened in April 1994 and November 2000. When the species was split into separate units in November 2009, the "Ontario populations" unit was designated Threatened.

Eastern Sand Darter ***Ammocrypta pellucida*** **Threatened**

Quebec populations

Assessment Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

Reason for Designation
This species prefers sand bottom areas of lakes and streams in which it burrows. There is continuing decline in the already small and fragmented populations; three (of 18) have probably been extirpated, and the fate of five others is unknown due to lack of recent sampling. The extent of occurrence of this species in Québec is approximately two-thirds of what it was in the 1970s, despite records at five new sites in two locations. There is continuing habitat loss and degradation from historic and ongoing urban and agricultural development, stream channelization and competition with invasive alien species.

Range QC

Status History
The species was considered a single unit and designated Threatened in April 1994 and November 2000. When the species was split into separate units in November 2009, the "Quebec populations" unit was designated Threatened.

Quillback Rockfish ***Sebastes maliger*** **Threatened**
Assessment Criteria A2bd

Reason for Designation
This species is part of an inshore rockfish complex, with 95% of commercial catch records occurring between 14 and 143m depth. Maximum recorded age is 95 years, age at 50% maturity is 11 years and generation time is over 30 years. No overall estimate of decline is possible, however all survey indices have declined, some by 50-75% since the mid-1980s. Commercial catch per unit effort indices show inconsistent trends and are probably affected by changes in fishing practices. Commercial and recreational fisheries are the principal threats, however, commercial fishing pressure has been reduced as a result of strengthened management regimes established in the mid-1990s, including introduction of closed areas and decrease in commercial harvest quotas. Management measures for recreational fisheries (bag limits) do not restrict catches and the impact of such catches on the species is less understood.

Range Pacific Ocean

Status History
Designated Threatened in November 2009.

Basking Shark ***Cetorhinus maximus*** **Special Concern**
Atlantic population
Assessment Criteria not applicable

Reason for Designation
This species, which attains a maximum length of over 15 m (the second-largest living fish) is highly vulnerable to human-caused mortality because of its extremely low productivity. Females mature at 16 to 20 years old, gestate for 2.6 to 3.5 years (the longest known gestation period of any vertebrate), and produce litters of about 6 offspring. Based on recent tagging information, individuals in Canada are considered to be part of an Atlantic population shared with the USA, Europe, the Caribbean and northern South America. Population estimates in Canadian waters have large uncertainties and may number between 4918-10125 individuals. Population estimates outside Canadian waters are not available. Information from surveys along the Atlantic coast from Nova Scotia to Florida indicates no decline over the past two decades. However, available information suggests substantial population declines in the northeast Atlantic. The species is caught incidentally in trawl, longline, and gillnet fisheries in Atlantic Canada. Removals in fisheries with observer coverage have decreased since the 1980s consistent with a reduction in fishing effort, but information on bycatch from other fisheries is not available. There is no evidence of recovery following declines associated with fisheries in other parts of the range. Ship collisions are an additional threat.

Range Atlantic Ocean

Status History
Designated Special Concern in November 2009.

Darkblotched Rockfish ***Sebastes crameri*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
This long-lived species (maximum age 100 years; generation length 23 years) demonstrates episodic recruitment events. The species is taken at relatively low levels in fisheries targeting more abundant rockfishes. Research surveys show no clear abundance trends, although information on abundance trends has relatively high uncertainty. In adjacent US waters, the species declined 84% from 1928-1999 and is considered overfished, although there has been some recent population recovery. Recent surveys do not account for population declines from foreign fishing prior to the 1970s.

Range Pacific Ocean

Status History
Designated Special Concern in November 2009.

Arthropods

Bert's Predaceous Diving Beetle ***Sanfilippodytes bertae*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
Despite extensive searches, this Canadian endemic species is known from only two locations in southern Alberta, one of which has been destroyed. It is limited to springs and seepage areas along steep cliff edges or river bends. Its habitat is declining due to trampling by livestock and lowering of the water table due to withdrawals for irrigation.

Range AB

Status History
Designated Endangered in November 2009.

Bogbean Buckmoth ***Hemileuca* sp.** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This very rare moth is only known from New York and Ontario. In Ontario, it is found in two widely separated fens. It is susceptible to the effects of exotic invasive plants, especially European Common Reed, that are crowding out its preferred foodplant, the Bogbean, and of potential flooding or drying of habitat resulting from manipulation of water levels at the main site.

Range ON

Status History
Designated Endangered in November 2009.

Northern Barrens Tiger Beetle ***Cicindela patruela*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This showy metallic green beetle inhabits sandy, open forest habitat dominated by pine and/or oak trees. Found in northeastern and northcentral North America, it is globally imperiled reaching its northern limit in southern Ontario where it is currently found at only two localities. The species has disappeared from one well known historic site. Habitat loss resulting from natural succession and increased pedestrian traffic are significant threats.

Range ON QC

Status History
Designated Endangered in November 2009.

Wallis' Dark Saltflat Tiger Beetle ***Cicindela parowana wallisi*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii); C2a(ii)

Reason for Designation
This distinctively marked beetle is historically known from five locations in a region where urban and agricultural expansion have, and continue to reduce habitat. Extensive recent searches have failed to find the beetle and it may occur at only a single location. The index of area of occupancy is small and there is potential future decline in habitat and in number of individuals due to development.

Range BC

Status History
Designated Endangered in November 2009.

Molluscs

Dwarf Wedgemussel ***Alasmidonta heterodon*** **Extirpated**
Range NB

Status History
Extirpated by 1968. Designated Extirpated in April 1999. Status re-examined and confirmed in May 2000 and November 2009.

Atlantic Mud-piddock ***Barnea truncata*** **Threatened**
Assessment Criteria D2

Reason for Designation
This intertidal marine bivalve species is restricted to a single population in the Minas Basin, Nova Scotia. Although this species is adapted to boring into hard clay and soft rock, in Canada it is entirely dependent on a single geological formation, the red-mudstone facies within the basin. The total available habitat for this species is < 0.6 km^2. This species settles on and bores into the mudstone, and once settled, is immobile. Any changes in deposition of sediments can smother individuals or cover entire areas of habitat. Disturbances that change the sediment depositional regime are considered the main threat. Most serious is the increased frequency and severity of storms, due to climate change, which have the potential to rapidly bury habitat and smother individuals. It is expected that erosion from rising sea levels (storm surges) and increased rainfall (floods), would also contribute to habitat loss by sediment deposition. Proposed development in the basin could also alter or add to sediment deposition. The Canadian population is clearly disjunct from the nearest population, 350 km south, in Maine, and rescue is very unlikely.

Range Atlantic Ocean

Status History
Designated Threatened in November 2009.

Vascular Plants

Coast Manroot ***Marah oreganus*** **Endangered**
Assessment Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(i); D1

Reason for Designation
A long-lived perennial vine occurring at only three widely separated locations in southeastern Vancouver Island and adjacent Gulf Islands. Fewer than 20 mature plants remain with no evidence of seedling production. Losses of habitat, populations and mature individuals are projected in its Canadian range. Main threats are development of the few known sites, alien species and chance events affecting the handful of remaining individuals.

Range BC

Status History
Designated Endangered in November 2009.

Pink Milkwort ***Polygala incarnata*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This annual herb is highly restricted geographically and is present in tallgrass prairie habitats in southwestern Ontario. There are likely four populations with a total of approximately 1800 plants, most of which are found in one population. Threats to all populations include encroachment by woody plants due to fire suppression and invasive species. Habitat conversion to agriculture, housing development, mowing, trampling, drainage and moisture alteration threaten three populations.

Range ON

Status History
Designated Endangered in April 1984. Status re-examined and confirmed Endangered in April 1998, May 2000, and November 2009.

Virginia Goat's-rue ***Tephrosia virginiana*** **Endangered**
Assessment Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(ii)

Reason for Designation
A species of restricted geographical occurrence in Canada present as two remaining populations within remnant Black Oak savanna and Black Oak woodland habitats in southwestern Ontario. These habitats are globally rare and are one of the most threatened ecological communities in Canada. Most of the fewer than 600 plants are present as a single population within two nearby protected areas. Here the species is at risk from habitat degradation through successional changes. The very small second population, found on private land, is at risk of loss due to erosion of its sandy dune habitat.

Range ON

Status History
Designated Threatened in April 1996. Status re-examined and designated Endangered in May 2000 and November 2009.

Redroot ***Lachnanthes caroliniana*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
A highly disjunct Atlantic Coastal Plain species restricted in Canada mainly to two connected, extensive, lakeshore populations in southern Nova Scotia. Comprehensive new surveys and other information indicate that the risk of extinction for this species is less than previously thought. Its lakeshore habitat has been subject to slow but steady loss and decline in quality due to cottage and residential development for 30 to 40 years. Losses are likely to continue through the foreseeable future with new development and intensification of existing development, but the proportion of habitat currently developed is still low and the species' locally widespread occurrence and asexual reproduction mitigates the threat of extirpation in the short term.

Range NS

Status History
Designated Threatened in April 1994. Status re-examined and confirmed in May 2000. Status re-examined and designated Special Concern in November 2009.

Mosses

Rigid Apple Moss ***Bartramia stricta*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This species is found in western North America in British Columbia, Washington and California. In BC, the species occurs at 5 sites on southern Vancouver Island and adjacent Gulf Islands where the species is restricted to Garry Oak ecosystems. The species grows on either well-drained, shallow, compacted soil, or on meta-igneous rock outcrop faces. The species is closely associated with seepage areas. Threats include weed invasion, trampling, changes in land use that affect grazing patterns, and urbanization of Garry Oak ecosystems.

Range BC

Status History
Designated Threatened in April 1997. Status re-examined and designated Endangered in May 2000 and November 2009.

Lichens

Pale-bellied Frost Lichen ***Physconia subpallida*** **Endangered**
Assessment Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(i); D1

Reason for Designation
This lichen is an eastern North American endemic that, in Canada, is restricted to 2 known locations in southern Ontario. The lichen grows as an epiphyte on hardwoods and requires bark with high pH and high moisture holding capacity. Only 45 individuals are known, growing on 16 trees. The lichen appears to have suffered a dramatic population decline throughout its range since the early 1900's; in Canada 4 historical sites have been lost. The major threat to the lichen is air pollution and timber harvest.

Range ON

Status History
Designated Endangered in November 2009.

Vole Ears ***Erioderma mollissimum*** **Endangered**
Assessment Criteria C2a(i)

Reason for Designation
This large foliose lichen is known in Canada only from Nova Scotia, New Brunswick, and the island of Newfoundland, where it inhabits cool, humid and coastal conifer forests dominated by Balsam Fir. Although there are 24 known sites for the lichen in these regions, few individuals (133 thalli) are known. While recent surveys have increased the number of known locations, the lichen has been extirpated from 11 sites in the last 30 years. This lichen is a sensitive indicator of air pollution and acid precipitation, which are its main threats. Other threats include forest harvest and browsing by moose.

Range NB NS NL

Status History
Designated Endangered in November 2009.

*Assessment criteria and reasons for designation are not specified when a review of classification is conducted by means of status appraisal. The status appraisal process is used when a review of classification is required and it is reasonably certain that the wildlife species' status has not changed from the previous assessment.

**The reports on Virginia Mallow (*Sida hermaphrodita*), Deepwater Redfish (*Sebastes mentella*), and Acadian Redfish (*Sebastes fasciatus*) were withdrawn. It is anticipated that these wildlife species will be re-considered by COSEWIC in April 2010. The report on Monarch (*Danaus plexippus*) was withdrawn to allow for inclusion of recent information related to breeding on the wintering grounds.

23/08/2010

COSEWIC Wildlife Species Assessments (detailed version), April 2010*

Results are grouped by taxon and then by status category. The range of occurrence in Canada (by province, territory or ocean) and history of status designation are provided for each wildlife species. Assessment criteria and reason for designation are shown, where applicable**.

Birds

Acadian Flycatcher ***Empidonax virescens*** **Endangered**
Assessment Criteria D1

Reason for Designation
In Canada, this species is restricted to certain types of mature forest in southern Ontario. Only small numbers breed in Canada. Although the population appears to have been relatively stable over the past 10-20 years, this is most likely due to immigration from U.S. populations. The species is threatened by forestry practices, particularly those that target removal of large trees. Serious conservation concerns, both in Canada and the adjacent U.S. also stem from increasingly widespread losses of a variety of favoured nest tree species owing to the spread of an array of invasive forest insects and pathogens. Collectively, these threats to habitat greatly reduce potential for rescue from adjacent U.S. populations.

Range ON

Status History
Designated Endangered in April 1994. Status re-examined and confirmed in November 2000 and April 2010.

Whooping Crane ***Grus americana*** **Endangered**
Assessment Criteria B1ab(iii); D1

Reason for Designation
Canada is home to 100% of the naturally-occurring global breeding population of this species. Although never common, its population dipped to only 14 adult birds early in the last century, at which point the species was at the brink of extinction. Conservation efforts in Canada and the U.S. not only rescued the remnant population from extinction, but later resulted in population increases. To help ensure persistence of the species, efforts to establish wild flocks of captive-bred individuals outside Canada have been underway for several decades. Nevertheless, Canada's breeding population is still very small and is confined to a limited breeding area and only one wintering location. This situation exposes it to catastrophic natural events (e.g. droughts, hurricanes) and a variety of ongoing anthropogenic threats (e.g. loss and degradation of coastal wetland habitats on the wintering grounds, oil spills in coastal areas, and collisions with power lines and structures during migration). Last, because of delayed sexual maturity and a naturally low annual reproductive output, this species has an inherently weak capacity to rebound from pressures that reduce survivorship or reproductive success.

Range NT AB SK MB

Status History
Designated Endangered in April 1978. Status re-examined and confirmed in November 2000 and in April 2010.

Bobolink ***Dolichonyx oryzivorus*** **Threatened**

Assessment Criteria A2b

Reason for Designation
Over 25% of the global population of this grassland bird species breeds in Canada, which is the northern portion of its range. The species has suffered severe population declines since the late 1960's and the declines have continued over the last 10 years, particularly in the core of its range in Eastern Canada. The species is threatened by incidental mortality from agricultural operations, habitat loss and fragmentation, pesticide exposure and bird control at wintering roosts.

Range BC AB SK MB ON QC NB PE NS NL

Status History
Designated Threatened in April 2010.

Lewis's Woodpecker ***Melanerpes lewis*** **Threatened**

Assessment Criteria C2a(i); D1

Reason for Designation
In Canada, this woodpecker breeds only in British Columbia. Its population is small, with fewer than 1000 individuals, and there is evidence of ongoing declines in parts of its Canadian range where it has been monitored over time. The global population (Canada and the USA) is also showing significant declines. Threats include habitat loss and degradation from increasing urban and agriculture development, and fire suppression. Recent surveys have shown the species to be far less numerous than previously believed.

Range BC

Status History
Designated Special Concern in April 1999. Status re-examined and confirmed in November 2001. Status re-examined and designated Threatened in April 2010.

Sprague's Pipit ***Anthus spragueii*** **Threatened**

Assessment Criteria Does not meet any of the criteria, but designated Threatened because of a substantial decline in the population since the late 1960's and a projected loss and fragmentation of habitat likely to affect this area sensitive grassland specialist.

Reason for Designation
Approximately 80% of the global breeding population of this species occurs in Canada. It is a habitat specialist that needs large tracts of intact native grassland for breeding. Threats at both breeding and wintering grounds include ongoing habitat loss, degradation and fragmentation. The species has experienced long-term declines with no evidence of recovery.

Range AB SK MB

Status History
Designated Threatened in April 1999. Status re-examined and confirmed in May 2000 and April 2010.

Flammulated Owl ***Otus flammeolus*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
In Canada, this small owl is restricted to older Douglas-fir and Ponderosa Pine forests of the southern interior of British Columbia. The species requires mature coniferous forests with a mosaic of large-diameter, old trees, clumps of dense regenerating younger trees and small patches of shrubby grassland for breeding. The extent and quality of this habitat was significantly reduced through the early to mid-1900s by forest harvest. Ongoing threats include forestry practices that remove large trees and snags, epidemics of insect pests such as the Mountain Pine Beetle and catastrophic fires combined with the species' small population, limited distribution, small clutch size and delayed breeding of males.

Range BC

Status History
Designated Special Concern in April 1988. Status re-examined and confirmed Special Concern in April 1999, November 2001, and April 2010.

Reptiles

Loggerhead Sea Turtle ***Caretta caretta*** **Endangered**
Assessment Criteria A2b+4b

Reason for Designation
This species is declining globally and there are well documented, ongoing declines in the Northwest Atlantic population from which juveniles routinely enter and forage in Atlantic Canadian waters. The Canadian population is threatened directly by commercial fishing, particularly bycatch in the pelagic longline fleet, and by loss and degradation of nesting beaches in the southeastern USA and the Caribbean. Other threats include bycatch from bottom and midwater trawls, dredging, gillnets, marine debris, chemical pollution and illegal harvest of eggs and nesting females.

Range Atlantic Ocean

Status History
Designated Endangered in April 2010.

Queensnake ***Regina septemvittata*** **Endangered**
Assessment Criteria B2ab(ii,iii,iv,v); C2a(i)

Reason for Designation
This species has a restricted and shrinking distribution in southwest Ontario. It consists of scattered small populations which are isolated due to habitat fragmentation and the species' limited dispersal capacity. Over the last decade, the number of extant locations has declined and the species' riparian and riverine habitat has continued to be lost and degraded. The species is limited by its extremely specialized diet and threatened by decline in its prey of freshly moulted juvenile crayfish. Other threats include persecution and effects of invasive Zebra Mussels and Common Reed.

Range ON

Status History
Designated Threatened in April 1999. Status re-examined and confirmed in May 2000. Status re-examined and designated Endangered in April 2010.

Amphibians

Fowler's Toad ***Anaxyrus fowleri*** **Endangered**

Assessment Criteria B1ab(ii,iii,v)c(iv)+2ab(ii,iii,v)c(iv); E

Reason for Designation
This species only occurs on sandy beaches in three disjunct areas along the north shore of Lake Erie. It has disappeared from numerous historic sites on the Lake Erie shore and continues to decline in abundance and number of populations with further habitat loss and degradation due to invasive species (Common Reed, Zebra Mussels) and anthropogenic activities including shoreline development, beach cleaning, construction of breakwalls, bulldozing of beaches, vehicle use on beaches and agricultural and industrial contaminants. In addition, a Population Viability Analysis (PVA) model suggests that over the last decade, the probability of extirpation within 20 years has increased substantially.

Range ON

Status History
Designated Special Concern in April 1986. Status re-examined and designated Threatened in April 1999. Status re-examined and confirmed in November 2000. Status re-examined and designated Endangered in April 2010.

Great Plains Toad ***Anaxyrus cognatus*** **Special Concern**

Assessment Criteria not applicable

Reason for Designation
This species is widespread but has a scattered distribution of mostly small populations that fluctuate in numbers. It almost meets criteria for Threatened and could become Threatened because of ongoing loss and degradation of habitat, particularly loss of intermittent wetlands from cultivation, oil and gas development and increase in droughts. These threats increase fragmentation of populations and jeopardize their persistence.

Range AB SK MB

Status History
Designated Special Concern in April 1999. Status re-examined and confirmed in May 2002 and April 2010.

Fishes

Atlantic Cod ***Gadus morhua*** **Endangered**

Newfoundland and Labrador population

Assessment Criteria A2b

Reason for Designation

This designatable unit (DU) includes the cod management units 2GH, 2J3KL and 3NO, located in the inshore and offshore waters of Labrador and eastern Newfoundland, and the Grand Banks. Cod in this area have declined 97-99% in the past 3 generations and more than 99% since the 1960s. The area of occupancy declined considerably as the stock collapsed in the early 1990s. The main cause of the decline in abundance was overfishing, and there has been a large reduction in the fishing rate since 1992. However, the population has remained at a very low level with little sign of substantive recovery. The most recent surveys indicate an increase in abundance over the past 3 years, however this change in abundance is very small compared to the measured decline over the past 3 generations. The extremely low level of abundance and contracted spatial distribution makes the population vulnerable to catastrophic events, such as abnormal oceanographic conditions. Threats from fishing, predation, and ecosystem changes persist. There is no limit reference point (LRP) for the 2J3KL management unit but the population in this area is considered to be well below any reasonable LRP value. The offshore 2J3KL fishery is under moratorium and there is an inshore stewardship fishery with no formal total allowable catch (TAC). The fishery in the 3NO management unit is also under moratorium. There is a LRP for this management unit and the population is well below this value.

Range Atlantic Ocean

Status History

The species was considered a single unit and designated Special Concern in April 1998. When the species was split into separate populations in May 2003, the Newfoundland and Labrador population was designated Endangered. Status re-examined and confirmed in April 2010.

Atlantic Cod ***Gadus morhua*** **Endangered**

Laurentian South population

Assessment Criteria A2b+3b+4b; E

Reason for Designation

Populations in this designatable unit (DU) have declined by 90% in the past 3 generations. The main cause of the rapid decline in abundance during the early 1990s was overfishing. Commercial fisheries were curtailed in 1993 and the abundance stabilized for a number of years. However, increased natural mortality and continued small catches have caused the abundance to decline again. Quantitative analysis of population demographic parameters indicate the population will continue to decline in the absence of fishing if the current elevated level of natural mortality persists. This DU includes the cod management units 4TVn (November – April), 4Vn (May – October) and 4VsW. A limit reference point (LRP) has been estimated for the 4TVn management unit and the current status is assessed to be well below the LRP. An LRP has not been estimated for the 4VsW management unit, however it is considered to be at a critically low level.

Range Atlantic Ocean

Status History

The species was considered a single unit and designated Special Concern in April 1998. When the species was split into separate populations in May 2003, the Maritimes population was designated Special Concern. When the Maritimes population was further split into two populations (Laurentian South population and Southern population) in April 2010, the Laurentian South population was designated Endangered, and the original Maritimes population was de-activated.

Atlantic Cod ***Gadus morhua*** **Endangered**

Southern population

Assessment Criteria A2b

Reason for Designation

Populations in this designatable unit (DU) have declined by 64% in the past 3 generations and the decline is continuous. Commercial fishing is ongoing and is an important contributor to the decline. As well, there is evidence of an unexplained increase in natural mortality in the 4X portion of the DU. Rescue from the US population is unlikely given the low abundance of the species in that area. This DU includes the cod management units 4X5Y and 5Zjm. There is a directed fishery for the species in the 4X5Y area, and although there is no limit reference point (LRP), recent fishery management advice indicates that this management unit is at a critically low level. There is also a directed fishery in the 5Zjm management unit and this fishery is co-managed with the United States.

Range Atlantic Ocean

Status History

The species was considered a single unit and designated Special Concern in April 1998. When the species was split into separate populations in May 2003, the Maritimes population was designated Special Concern. When the Maritimes population was further split into two populations (Laurentian South population and Southern population) in April 2010, the Southern population was designated Endangered, and the original Maritimes population was de-activated.

Atlantic Cod ***Gadus morhua*** **Endangered**

Laurentian North population

Assessment Criteria A2b

Reason for Designation

Populations in this designatable unit (DU) have declined 76-89% in the past 3 generations. The main cause of the decline in abundance was overfishing and there is no indication of recovery. This DU includes the cod management units 3Ps and 3Pn4RS. A limit reference point (LRP) has been estimated for the 3Pn4RS management unit. The abundance for this management unit has been relatively stable over the past decade, but it is well below the LRP, and directed fisheries continue. Abundance in southern Newfoundland (3Ps) is declining. The assessment indicates that this management unit is at the LRP, and directed fisheries continue.

Range Atlantic Ocean

Status History

The species was considered a single unit and designated Special Concern in April 1998. When the species was split into separate populations in May 2003, the Laurentian North population was designated Threatened. Status re-examined and designated Endangered in April 2010.

Deepwater Redfish ***Sebastes mentella*** **Endangered**

Gulf of St. Lawrence - Laurentian Channel population

Assessment Criteria A2b+4b

Reason for Designation

As with other members of the family Sebastidae, this species is long-lived (maximum age about 75 yr), late-maturing (generation time 18 yr), and highly vulnerable to mortality from human activities. Recruitment is episodic, with strong year-classes only occurring every 5-12 years. Abundance of mature individuals has declined 98% since 1984, somewhat more than one generation, and the decline has not ceased. Directed fishing and incidental harvest in fisheries for other species (bycatch) are the main known threats. Harvesting in parts of this population (Gulf of St. Lawrence) is currently limited to an index fishery, but commercial fisheries remain open in other areas (Laurentian Channel). Bycatch in shrimp fisheries has been substantially reduced since the 1990s by use of separator grates in trawls, but could still be frequent enough to affect recovery.

Range Atlantic Ocean

Status History

Designated Endangered in April 2010.

Paxton Lake Benthic Threespine Stickleback ***Gasterosteus aculeatus*** **Endangered**

Assessment Criteria A3e

Reason for Designation
This small freshwater fish is a unique Canadian endemic that is restricted to a single small lake in coastal British Columbia (BC). The wildlife species is highly susceptible to extinction from aquatic invasive species introductions that have been observed to cause rapid extinction of similar species in at least two other lakes. Invasive aquatic species continue to increase in lakes on adjacent Vancouver Island and the lower mainland of BC, and there is, therefore, a reasonable likelihood that invasives could be introduced into the habitat of the species over the next 10 years. This species is also susceptible to habitat loss and degradation from water extraction and land use activities in the surrounding landscape.

Range BC

Status History
Designated Threatened in April 1998. Status re-examined and confirmed in April 1999. Status re-examined and designated Endangered in May 2000. Status re-examined and confirmed in April 2010.

Paxton Lake Limnetic Threespine Stickleback ***Gasterosteus aculeatus*** **Endangered**

Assessment Criteria A3e

Reason for Designation
This small freshwater fish is a unique Canadian endemic that is restricted to a single small lake in coastal British Columbia (BC). The wildlife species is highly susceptible to extinction from aquatic invasive species introductions that have been observed to cause rapid extinction of similar species in at least two other lakes. Invasive aquatic species continue to increase in lakes on adjacent Vancouver Island and the lower mainland of BC, and there is, therefore, a reasonable likelihood that invasives could be introduced into the habitat of the species over the next 10 years. This species is also susceptible to habitat loss and degradation from water extraction and land use activities in the surrounding landscape.

Range BC

Status History
Designated Threatened in April 1998. Status re-examined and confirmed in April 1999. Status re-examined and designated Endangered in May 2000. Status re-examined and confirmed in April 2010.

Vananda Creek Benthic Threespine Stickleback ***Gasterosteus aculeatus*** **Endangered**

Assessment Criteria A3e

Reason for Designation
This small freshwater fish is a unique Canadian endemic that is restricted to three small, interconnected lakes in coastal British Columbia (BC). The wildlife species is highly susceptible to extinction from aquatic invasive species introductions that have been observed to cause rapid extinction of similar species in at least two other lakes. Invasive aquatic species continue to increase in lakes on adjacent Vancouver Island and the lower mainland of BC, and there is, therefore, a reasonable likelihood that invasives could be introduced into the habitat of the species over the next 10 years. This species is also susceptible to habitat loss and degradation from water extraction and land use activities in the surrounding landscape.

Range BC

Status History
Designated Threatened in April 1999. Status re-examined and designated Endangered in May 2000. Status re-examined and confirmed in April 2010.

Vananda Creek Limnetic Threespine Stickleback ***Gasterosteus aculeatus*** **Endangered**

Assessment Criteria A3e

Reason for Designation
This small freshwater fish is a unique Canadian endemic that is restricted to three small, interconnected lakes in coastal British Columbia (BC). The wildlife species is highly susceptible to extinction from aquatic invasive species introductions that have been observed to cause rapid extinction of similar species in at least two other lakes. Invasive aquatic species continue to increase in lakes on adjacent Vancouver Island and the lower mainland of BC, and there is, therefore, a reasonable likelihood that invasives could be introduced into the habitat of the species over the next 10 years. This species is also susceptible to habitat loss and degradation from water extraction and land use activities in the surrounding landscape.

Range BC

Status History
Designated Threatened in April 1999. Status re-examined and designated Endangered in May 2000. Status re-examined and confirmed in April 2010.

Western Brook Lamprey ***Lampetra richardsoni*** **Endangered**

Morrison Creek population

Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This dimorphic population of lamprey is a small freshwater fish endemic to a small stream on eastern Vancouver Island. It is susceptible to habitat loss and degradation owing to its close proximity to a major highway and increasing urbanization in the watershed.

Range BC

Status History
Designated Threatened in April 1999. Status re-examined and designated Endangered in May 2000 and in April 2010.

Acadian Redfish ***Sebastes fasciatus*** **Threatened**

Atlantic population

Assessment Criteria Met criterion for Endangered, A2b, but designated Threatened, A2b, because the species is widely distributed, the population includes several hundred million mature individuals, and abundance indices are stable or increasing since the 1990s in some areas.

Reason for Designation
As with other members of the family Sebastidae, this species is long-lived (maximum age about 75 yr), late-maturing (generation time 16-18 yr), and highly vulnerable to mortality from human activities. Recruitment is episodic, with strong year-classes only occurring every 5-12 years. Abundance of mature individuals has declined 99% in areas of highest historical abundance over about two generations. However, since the 1990's, there has been no long-term trend in one area, and trends have been stable or increasing in other areas where large declines have been previously observed. Directed fishing and incidental harvest in fisheries for other species (bycatch) are the main known threats. Fisheries in parts of the range of this designatable unit (DU) are currently closed, but remain open in other areas. Bycatch in shrimp fisheries has been substantially reduced since the 1990s by use of separator grates in trawls, but could still be frequent enough to affect population recovery.

Range Atlantic Ocean

Status History
Designated Threatened in April 2010.

Coastrange Sculpin ***Cottus aleuticus*** **Threatened**

Cultus population

Assessment Criteria D2

Reason for Designation

This species is a small Canadian endemic freshwater fish found in a single lake in the lower mainland region of southwestern British Columbia, an area undergoing sustained and rapid urbanization. The lake is heavily used by recreationists and drains into the lower Fraser River area where many invasive species are well-established. Trends in indices of abundance suggest a modest decline and the single location makes the species particularly vulnerable should either habitat quality decline or vertebrate invasive species become established in the lake.

Range BC

Status History

Designated Special Concern in April 1997. Status re-examined and designated Threatened in November 2000 and in April 2010.

Deepwater Redfish ***Sebastes mentella*** **Threatened**

Northern population

Assessment Criteria Met criterion for Endangered, A2b, but designated Threatened, A2b, because the species is widely distributed, includes several million mature individuals, and has been stable or increasing since the mid-1990s.

Reason for Designation

As with other members of the family Sebastidae, this species is long-lived (maximum age about 75 yr), late-maturing (generation time 23 yr), and highly vulnerable to mortality from human activities. Recruitment is episodic, with strong year-classes only occurring every 5-12 years. Abundance of mature individuals has declined 98% since 1978, somewhat over one generation. However, declines have stopped since the mid-1990s and increases have been observed in some areas. Directed fishing and incidental harvest in fisheries for other species (bycatch) are the main known threats. Fisheries in parts of this designatable unit are currently closed, but remain open in other areas. Bycatch in shrimp fisheries has been substantially reduced since the 1990s by use of separator grates in trawls, but could still affect population recovery.

Range Atlantic Ocean

Status History

Designated Threatened in April 2010.

Umatilla Dace ***Rhinichthys umatilla*** **Threatened**

Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation

This small freshwater fish has a limited distribution in Canada encompassing habitats that have been extensively modified by widespread hydroelectric developments (change from riverine to reservoir habitats, altered flow regimes). It is likely that habitat will continue to be lost and degraded owing to hydroelectric operations, climate change, and increased water extraction. This species is also susceptible to aquatic invasive species that are widespread in the Columbia-Kootenay Rivers' portion of the species' range. Proposed additional hydroelectric and water storage development in the Similkameen River drainage is a potential major threat to habitat quality.

Range BC

Status History

Designated Special Concern in April 1988. Status re-examined and designated Threatened in April 2010.

Yellowmouth Rockfish ***Sebastes reedi*** **Threatened**
Assessment Criteria A2b

Reason for Designation
As with other rockfish species, this slow-growing (generation time 30 years), long-lived (maximum age 100 years) species is vulnerable to commercial fishing. Research vessel surveys indicate that abundance has declined considerably over the past 40 years (1.5 generations). While contemporary surveys designed specifically for groundfish species indicate a recent period (5 years) of relative stability, it is not clear that the decline has ceased. The initial period of decline occurred as the commercial fishery for this and other rockfish species developed. Although this is considered normal for a newly exploited population, the total decline in abundance is inferred to be well beyond what is optimal for an exploited population. The absence of any strong recruitment events during the last 20 years is also a concern. The species is an important component of BC's commercial fisheries. Fishing continues to be a threat and there is no established limit reference point to help manage these fisheries in a precautionary manner.

Range Pacific Ocean

Status History
Designated Threatened in April 2010.

Acadian Redfish ***Sebastes fasciatus*** **Special Concern**
Bonne Bay population
Assessment Criteria not applicable

Reason for Designation
As with other members of the family Sebastidae, this species is long-lived (maximum age about 75 yr), late-maturing (females 50% mature at 8-10 yr in the adjacent Gulf of St. Lawrence/Laurentian Channel population), and highly vulnerable to mortality from human activities. Little is known of the biology of this designatable unit (DU). It has a small range of occurrence but there is no indication of decline. The population has been exploited by fishing in the past, but is currently closed to directed fishing. This DU is susceptible to extirpation by random events such as oil spills.

Range Atlantic Ocean

Status History
Designated Special Concern in April 2010.

Atlantic Cod ***Gadus morhua*** **Special Concern**
Arctic Lakes population
Assessment Criteria not applicable

Reason for Designation
This designatable unit (DU) exists in 3 isolated lakes on Baffin Island, Nunavut. The combined surface area of the 3 lakes is less than 20 km^2. Rescue from other DUs is not possible. One of the lakes, Ogac Lake, is accessible for fishing and large numbers of the species may be removed from the lake if fishing increases.

Range NU

Status History
The species was considered a single unit and designated Special Concern in April 1998. When the species was split into separate populations in May 2003, the Arctic population was designated Special Concern. When the Arctic population was further split into two populations (Arctic Lakes population and Arctic Marine population) in April 2010, the Arctic Lakes population was designated Special Concern, and the original Arctic population was de-activated.

Rocky Mountain Sculpin ***Cottus* sp.** **Special Concern**
Westslope populations
Assessment Criteria not applicable

Reason for Designation
This small freshwater fish is restricted to a small number of locations (nine) within the Flathead River basin in southeastern British Columbia. It is sedentary as an adult and is particularly susceptible to habitat degradation from road building and associated use.

Range BC

Status History
Designated Special Concern in April 2010.

Spiny Dogfish ***Squalus acanthias*** **Special Concern**
Atlantic population
Assessment Criteria not applicable

Reason for Designation
This small shark is widely distributed in temperate regions of the world's oceans and appears to be a habitat generalist. The Atlantic population occurs from Labrador to Cape Hatteras; in Canadian waters the species is most abundant in southwest Nova Scotia. An average of six pups are born every two years; the gestation period of 18-24 months is one of the longest known for any vertebrate. The species has few natural predators, but is subject to both targeted and bycatch fishing mortality. The species remains relatively abundant in Canadian waters, but low fecundity, long generation time (23 years), uncertainty regarding abundance of mature females, and demonstrated vulnerability to overfishing in adjacent U.S. waters are causes for concern.

Range Atlantic Ocean

Status History
Designated Special Concern in April 2010.

Atlantic Cod ***Gadus morhua*** **Data Deficient**
Arctic Marine population
Assessment Criteria not applicable

Reason for Designation
Information to establish any COSEWIC status category with assurance is not available. Data on distribution, abundance, habitat, and changes over time are insufficient.

Range Atlantic Ocean

Status History
The species was considered a single unit and designated Special Concern in April 1998. When the species was split into separate populations in May 2003, the Arctic population was designated Special Concern. When the Arctic population was further split into two populations (Arctic Lakes population and Arctic Marine population) in April 2010, the Arctic Marine population was designated Data Deficient, and the original Arctic population was de-activated.

Arthropods

Frosted Elfin ***Callophrys irus*** **Extirpated**
Range ON

Status History
Extirpated by 1988. Designated Extirpated in April 1999. Status re-examined and confirmed in May 2000 and in April 2010.

Island Marble ***Euchloe ausonides insulanus*** **Extirpated**
Range BC

Status History
Extirpated by 1910. Designated Extirpated in April 1999. Status re-examined and confirmed in May 2000 and in April 2010.

Karner Blue ***Lycaeides melissa samuelis*** **Extirpated**
Range ON

Status History
Has not been observed since 1991. Designated Extirpated in April 1997. Status re-examined and confirmed in May 2000 and April 2010.

Laura's Clubtail ***Stylurus laurae*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This attractive dragonfly of eastern North America is known from only two locations in unusual fast-moving sandy streams in southwestern Ontario. The species has a very small range in Canada and there is evidence of continuing decline of habitat.

Range ON

Status History
Designated Endangered in April 2010.

Rusty-patched Bumble Bee ***Bombus affinis*** **Endangered**
Assessment Criteria A2ce; B1ab(i,ii,iv,v)+2ab(i,ii,iv,v)

Reason for Designation
This species, which has a distinctive color pattern, was once commonly found throughout southern Ontario. Active searches throughout its Canadian range have detected only one small population over the past seven years which suggests a decline of at least 99% over the past 30 years. It is threatened by disease, pesticides, and habitat fragmentation, each of which could cause extirpation in the near future.

Range ON QC

Status History
Designated Endangered in April 2010.

Monarch ***Danaus plexippus*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
This species has a population of millions to over one billion individuals. The most sensitive stage of its annual cycle is overwintering. There are two main overwintering areas: the Oyamel Fir forests of Central Mexico, where 90% of the population overwinters, and coastal regions of California. The overall area of these sites is relatively small, and threats, especially from logging in the Oyamel Fir forests, are sufficient to suggest that the species could become Threatened in the near future.

Range BC AB SK MB ON QC NB PE NS

Status History
Designated Special Concern in April 1997. Status re-examined and confirmed in November 2001 and in April 2010.

Molluscs

Northern Riffleshell ***Epioblasma torulosa rangiana*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This small freshwater mussel is restricted to two rivers in southern Ontario. Since the original COSEWIC assessment (2000), a small, possibly reproducing population was discovered in the Ausable River although only 16 live individuals, including one juvenile, have been found over the last 10 years. Recruitment is occurring at several sites along the Sydenham River and the population appears to be stable, but the perceived recovery could be due to increased sampling effort over the past 12 years. The main limiting factor is the availability of shallow, silt-free riffle habitat. Both riverine populations are in areas of intense agriculture and urban and industrial development, subject to siltation and pollution. Only four populations in the world, including the two in Canada, show signs of recruitment.

Range ON

Status History
Designated Endangered in April 1999. Status re-examined and confirmed in May 2000 and April 2010.

Rayed Bean ***Villosa fabalis*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This freshwater mussel is one of the smallest in Canada. It is found in two rivers in southern Ontario; more than 99% of the estimated total population is found in the Sydenham River. The original COSEWIC assessment (2000) concluded that it had been extirpated from most of its Canadian range and was confined to one river but a new, albeit small, population was discovered in 2004 in the North Thames River. Thirteen live individuals were found between 2004 and 2008 in this river. The main limiting factor is the availability of shallow, silt-free riffle habitat. Both riverine populations are in areas of intense agriculture and urban development, subject to siltation and pollution. Invasive Zebra Mussels have rendered much of the historic habitat unsuitable and pose a continuing threat to one of the last remaining populations.

Range ON

Status History
Designated Endangered in April 1999. Status re-examined and confirmed in May 2000 and April 2010.

Threaded Vertigo ***Nearctula* sp.** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
This minute terrestrial snail species is at the northern extent of its range, and found in lowland areas around the Strait of Georgia and on southern Vancouver Island. Most individuals live on the bark of Bigleaf Maple trees and appear to have poor capacity for dispersal between trees and sites. Removal of trees and habitat degradation due to urban expansion, roads and associated infrastructure, forestry, and agriculture are the main threats.

Range BC

Status History
Designated Special Concern in April 2010.

Wavy-rayed Lampmussel ***Lampsilis fasciola*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
This medium-sized freshwater mussel is confined to four river systems and the Lake St. Clair delta in southern Ontario. Since the original COSEWIC assessment of Endangered in 1999, surveys have identified a large, previously unknown reproducing population in the Maitland River. The mussels in the Thames River are also now reproducing. The largest population is in the Grand River; smaller but apparently reproducing populations are in the Ausable River and Lake St. Clair delta. Although water and habitat quality have declined throughout most of the species' former range in Canada, there are signs of improvement in some populations but habitats in Great Lakes waters are now heavily infested with invasive mussels and are uninhabitable for native mussels. The main limiting factor is the availability of shallow, silt-free riffle/run habitat. All riverine populations are in areas of intense agriculture and urban and industrial development, subject to degradation, siltation, and pollution. Invasive mussels continue to threaten the Lake St. Clair delta population and could be a threat to populations in the Grand and Thames rivers if they invade upstream reservoirs.

Range ON

Status History
Designated Endangered in April 1999. Status re-examined and confirmed in October 1999. Status re-examined and designated Special Concern in April 2010.

Vascular Plants

Cucumber Tree ***Magnolia acuminata*** **Endangered**
Assessment Criteria D1

Reason for Designation
This forest canopy species of the Carolinian zone of southern Ontario is present as a series of small populations in a region of highly fragmented forest cover. Its total Canadian population consists of about 200 trees with most of the sites having only a few mature reproductive individuals. Several sites only have single trees without evidence of regeneration which makes the species highly susceptible to certain catastrophic events, such as ice storms. Its habitat is under continued impact from local disturbances and loss of forest area.

Range ON

Status History
Designated Endangered in April 1984. Status re-examined and confirmed Endangered in April 1999, May 2000, and April 2010.

Eastern Mountain Avens ***Geum peckii*** **Endangered**
Assessment Criteria A2c+4c; B1ab(ii,iii)+2ab(ii,iii)

Reason for Designation
This globally imperiled species is geographically restricted in Canada to three locations of open peatland habitat in Nova Scotia. Its habitat has declined due to encroachment by woody vegetation, exacerbated by artificial drainage of sites. Portions of the habitat have also become degraded by nesting gulls. Threats including all-terrain vehicles, road maintenance and development have also impacted this species. Fewer than 9000 mature individuals remain with most found on private land.

Range NS

Status History
Designated Endangered in April 1986. Status re-examined and confirmed Endangered in April 1999, May 2000, and April 2010.

Eastern Prickly Pear Cactus ***Opuntia humifusa*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This cactus of sandy habitats is restricted in Canada to two very small locations in extreme southwestern Ontario along the north shore of Lake Erie. The two native populations are primarily at risk from habitat loss and degradation due to vegetation succession and shoreline erosion. Stochastic events could readily eliminate the population on Pelee Island consisting only of a few plants.

Range ON

Status History
Designated Endangered in April 1985. Status re-examined and confirmed Endangered in April 1998, May 2000, and April 2010.

Four-leaved Milkweed ***Asclepias quadrifolia*** **Endangered**
Assessment Criteria B1ab(iii,v)+2ab(iii,v); C2a(i); D1

Reason for Designation
Only two small extant populations are known in Canada at the eastern end of Lake Ontario, each with very low numbers of individuals. Historic populations within the Niagara Falls region are believed extirpated. Extant populations are in very rare limestone deciduous woodland communities where plants are at risk from shading by invasive Common Buckthorn shrubs and from native shrubs and trees expanding in the absence of ground fires. Residential development is a potential threat at the largest site. Future development on this site remains a reasonable possibility.

Range ON

Status History
Designated Endangered in April 2010.

Victoria's Owl-clover ***Castilleja victoriae*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This small annual herb is confined to a very small area of British Columbia and one site in adjacent Washington State. The species is restricted to seasonally wet microhabitats within the highly fragmented and declining Garry Oak ecosystem. Five of the nine Canadian populations disappeared before 1957 and one other population may have been recently extirpated. The three to four extant populations are subject to ongoing competition with several invasive exotic plants and two of the populations are very small and occur in areas used for recreational activities where trampling is a continuing problem.

Range BC

Status History
Designated Endangered in April 2010.

Virginia Mallow ***Sida hermaphrodita*** **Endangered**
Assessment Criteria B1ab(iii)+2ab(iii)

Reason for Designation
This globally rare showy perennial herb of the mallow family occurs in open riparian and wetland habitats where it reproduces by seed and asexually by spreading rhizomes. Only two small populations, separated by about 35 km, are known from southwestern Ontario where they are at risk from continued decline in habitat area and quality due to an aggressive invasive grass and quarry expansion.

Range ON

Status History
Designated Endangered in April 2010.

Whitebark Pine ***Pinus albicaulis*** **Endangered**
Assessment Criteria A3ce+4ace

Reason for Designation
This long-lived, five-needled pine is restricted in Canada to high elevations in the mountains of British Columbia and Alberta. White Pine Blister Rust alone is projected to cause a decline of more than 50% over a 100 year time period. The effects of Mountain Pine Beetle, climate change, and fire exclusion will increase the decline rate further. Likely, none of the causes of decline can be reversed. The lack of potential for rescue effect, life history traits such as delayed age at maturity, low dispersal rate, and reliance on dispersal agents all contribute to placing this species at high risk of extirpation in Canada.

Range BC AB

Status History
Designated Endangered in April 2010.

Dense Blazing Star ***Liatris spicata*** **Threatened**
Assessment Criteria B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)

Reason for Designation
This showy perennial herb is restricted in Canada to a few remnant tallgrass prairie habitats in southwestern Ontario. A variety of threats, including lack of consistent application of fire to control the spread of woody species, spread of invasive plants, loss of habitat to agriculture and development and various management practices, including mowing, have placed the species at continued risk.

Range ON

Status History
Designated Special Concern in April 1988. Status re-examined and designated Threatened in May 2001. Status re-examined and confirmed in April 2010.

Tubercled Spike-rush ***Eleocharis tuberculosa*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
In Canada, this sedge is known to exist only along peaty and sandy shorelines at six lakes in southwestern Nova Scotia. The use of all-terrain vehicles along the shores of the two larger lakes, where most of the Canadian population occurs, has degraded portions of the species' habitat. Cottage development and related impacts (water quality and habitat disturbances) are currently limited threats that have the potential to increase in the future. More intensive surveys of lakeshore habitats indicate that the species is somewhat more abundant than previously documented.

Range NS

Status History
Designated Threatened in May 2000. Status re-examined and designated Special Concern in April 2010.

Western Blue Flag ***Iris missouriensis*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
This showy perennial is restricted to ten native sites and is also present at a few sites where it is believed to have been introduced. It occurs primarily in the grasslands of southern Alberta. Several new populations have been discovered since the species was last assessed. The area occupied and total population size of native plants are now known to be larger than previously determined. The total Canadian population appears to be stable but fluctuates in size. The species is subject to on-going competition from invasive plants, but trampling in areas heavily grazed by cattle has been largely mitigated by recovery actions.

Range AB

Status History
Designated Threatened in April 1990. Status re-examined and confirmed in May 2000. Status re-examined and designated Special Concern in April 2010.

Lichens

Oldgrowth Specklebelly Lichen ***Pseudocyphellaria rainierensis*** **Special Concern**
Assessment Criteria not applicable

Reason for Designation
This foliose, tree-inhabiting lichen is endemic to old-growth rainforests of western North America. In Canada, it is limited to coastal or near-coastal areas of southern British Columbia. Recent discoveries of additional records have only slightly expanded the known range of occurrence, and the lichen remains threatened by ongoing loss of old growth forests through clear-cut logging. The low dispersal ability of its heavy propagules contributes to its rarity, as does its restriction to nutrient hotspots, such as dripzones under old Yellow-cedars, toe slope positions, and sheltered seaside forests. It tends to occur discontinuously and on very few trees in the stands where it is established.

Range BC

Status History
Designated Special Concern in April 1996. Status re-examined and confirmed in April 2010.

**Assessment criteria and reasons for designation are not specified when a review of classification is conducted by means of status appraisal. The status appraisal process is used when a review of classification is required and it is reasonably certain that the wildlife species' status has not changed from the previous assessment.

*The report on Pitcher's Thistle (*Cirsium pitcheri*) was withdrawn to allow inclusion of genetic data. The report on Crumpled Tarpaper Lichen (*Collema coniophilum*) was withdrawn to incorporate more information on search effort and to clarify threats. The report on Skillet Clubtail (*Gomphus ventricosus*) was withdrawn and a revised version of the status report will be prepared. It is anticipated that these wildlife species will be re-considered by COSEWIC in November 2010. The assessment of Rocky Mountain Tailed Frog (*Ascaphus montanus*) was deferred.

08/06/2010

APPENDIX II

COSEWIC
Committee on the Status of Endangered Wildlife in Canada

COSEPAC
Comité sur la situation des espèces en péril au Canada

More Species Closer to Extinction

So concluded COSEWIC (Committee on the Status of Endangered Wildlife in Canada), which met in Ottawa from November 23 to 27, 2009, to assess the risk of extinction for Canadian wildlife species. Of the 28 wildlife species assessed, many plants and animals are habitat specialists requiring specific and increasingly rare conditions to survive – all of these wildlife species suffer from habitat loss and fragmentation.

The Greater Prairie-Chicken that once numbered in the millions on the grasslands of the Canadian prairies, the Atlantic population of the Grey Whale on Canada's east coast and the Dwarf Wedgemussel, a mollusc whose habitat was destroyed by a causeway were all reassessed as Extirpated. The Eskimo Curlew, a bird known to nest only in Canada, was assessed as Endangered. Given there have been no verified sightings of this wildlife species anywhere since 1963, the Eskimo Curlew is on the brink of becoming the first Canadian bird to be declared Extinct since the Passenger Pigeon nearly 100 years ago. Without a reversal in habitat loss, climate change and direct human impacts, these assessments of Extirpated and Extinct will become more frequent.

Swift Rebound for Swift Fox – A Good News Story?

Known as one of the fastest animals in North America, this beautiful small fox holds considerable appeal as a symbol of prairie conservation and First Nations spirituality. Unfortunately, unrestrained harvest and poisoning decimated the Canadian population; the last sighting in the wild occurred in 1938 in Alberta. Efforts to reintroduce the Swift Fox beginning in 1983 appear to have been successful. Although the wildlife species was designated as Endangered in 2000, numbers in Alberta and Saskatchewan have since doubled leading to a reduced likelihood of extinction and a designation of Threatened. The wildlife species is, however, still imperilled because of habitat loss and risk of disease, which can rapidly spread through fox populations.

Photo © Gordon Court 2009

Big Shark in Deep Trouble

Despite this success, many wildlife species are still considered to be at risk in Canada. The Atlantic population of the Basking Shark, the largest fish in Canadian waters, was assessed as a wildlife species of Special Concern. Feeding on tiny plankton, it grows up to 12 meters – nearly the length of a city bus. This wildlife species is particularly susceptible to population declines because it takes up to 18 years to reach maturity and females are pregnant for about two and half years, one of the longest periods of any animal. The total population is estimated to be about 5 000 adults. The Pacific population of Basking Shark, which was once abundant and now rarely seen, was assessed as Endangered in 2007. This highlights the vulnerability of the wildlife species as a whole.

Fire Suppression Harms Wildlife

Over the decades, humans have become increasingly vigilant at preventing wildfires to protect human property and lives. Unfortunately, this comes at a cost to many native wildlife species that depend on periodic fires integral to ecosystem renewal. Three eastern Canadian wildlife species assessed at the meeting are particularly reliant on habitats produced by wildfire and all were assessed as Endangered. These include: the Northern Barrens Tiger Beetle, a globally imperiled, showy green beetle of the pine savannahs; an annual herb the Pink Milkwort, which depends on the wet prairie habitats of Ontario; and, a tall herb from the pea family, the Virginia Goat's-rue which lives in oak savannahs of Ontario.

Next meeting
COSEWIC's next scheduled wildlife species assessment meeting will be held in Victoria, BC, on April 25-30, 2010.

About COSEWIC

COSEWIC assesses the status of wild species, subspecies, varieties, or other important units of biological diversity, considered to be at risk in Canada. To do so, COSEWIC uses scientific, Aboriginal traditional and community knowledge provided by experts from governments, academia and other organizations. Summaries of assessments are currently available to the public on the COSEWIC website (www.cosewic.gc.ca) and will be submitted to the Federal Minister of the Environment in late summer 2010 for listing consideration under the *Species at Risk Act* (SARA). At that time, the full status reports will be publicly available on the SAR Public Registry (www.sararegistry.gc.ca).

There are now 585 wildlife species in various COSEWIC risk categories, including 250 Endangered, 150 Threatened, 162 Special Concern, 23 Extirpated (i.e. no longer found in the wild in Canada), and 13 wildlife species are Extinct. In addition, 45 wildlife species are Data Deficient.

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Fisheries and Oceans Canada, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members, and the co-chairs of the Species Specialist and the Aboriginal Traditional Knowledge Subcommittees.

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Extinct (X): A wildlife species that no longer exists.

Extirpated (XT): A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.

Endangered (E): A wildlife species facing imminent extirpation or extinction.

Threatened (T): A wildlife species that is likely to become Endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

Special Concern (SC): A wildlife species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

Not at Risk (NAR): A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

Data Deficient (DD): A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

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For inquiries on marine mammals: **Dr. Randall Reeves** Okapi Wildlife Associates 27 Chandler Lane Hudson QC J0P 1H0 Telephone: (450) 458-6685 Fax: (450) 458-7383 rreeves@okapis.ca	For inquiries on terrestrial mammals: **Dr. Justina C. Ray** Executive Director Wildlife Conservation Society Canada 720 Spadina Avenue #600 Toronto ON M5S 2T9 Telephone: (416) 850-9038 x 22 Fax: (416) 850-9040 jray@wcs.org
For inquiries on birds: **Jon McCracken** Director National Programs Bird Studies Canada P.O. Box 160 115 Front Street Port Rowan ON NOE 1M0 Telephone: (519) 586-3531 ext. 115 Fax: (519) 586-3532 jmccracken@bsc-eoc.org	For inquiries on amphibians: **Dr. Ronald J. Brooks** Department of Integrative Biology College of Biological Science University of Guelph Guelph ON N1G 2W1 Telephone: (519) 824-4120 ext. 53944 Fax: (519) 767-1656 rjbrooks@uoguelph.ca

For inquiries on freshwater fishes: **Dr. Robert Campbell** 983 Route 800 E R.R. #1 St. Albert ON K0A 3C0 Telephone: (613) 987-2552 Fax: (613) 987-5367 snowgoose@sympatico.ca	For inquiries on marine fishes: **Dr. Howard Powles** 53, rue Lortie Gatineau QC J9H 4G6 Telephone: (819) 684-7730 Fax: (819) 684-7730 powlesh@sympatico.ca
For inquiries on arthropods (insects and related taxa): **Dr. Paul Catling** Research Scientist and Curator Saunders Bldg., Central Experimental Farm Ottawa ON K1A 0C6 Telephone: (613) 759-1373 Fax: (613) 759-1599 catlingp@agr.gc.ca	For inquiries on molluscs: **Dr. Dwayne Lepitzki** 203, 410 Buffalo Street P.O. Box 1311 Banff AB T1L 1B3 Telephone: (403) 762-0864 lepitzki@telusplanet.net
For inquiries on plants: **Dr. Erich Haber** 60 Baywood Dr. Stittsville ON K2S 2H5 Telephone: (613) 435-0216 Fax: (613) 435-0217 erich.haber@rogers.com	For inquiries on lichens: **Dr. René Belland** Devonian Botanic Garden University of Alberta Edmonton, AB T6G 2E1 Telephone: (780) 987-3054 ext. 2240 Fax: (780) 987-4141 rbelland@ales.ualberta.ca

Further details on all wildlife species assessed, and the reasons for designations, can be found on the COSEWIC website at: www.cosewic.gc.ca

COSEWIC
Committee on the Status of Endangered Wildlife in Canada

COSEPAC
Comité sur la situation des espèces en péril au Canada

Species at Risk in Canada Increase in 2010 - *The International Year of Biodiversity*

Risk of Extinction Increases for Atlantic Cod

Numbers continue to decline for most Atlantic Cod populations. So concluded COSEWIC (Committee on the Status of Endangered Wildlife in Canada) which recently assessed the risk of extinction for 51 Canadian wildlife species when it met in Victoria, British Columbia from 25-30 April 2010.

Atlantic Cod has been an economic and dietary mainstay for maritime communities since the late 15th century. Decades of unsustainable harvesting have depleted Canada's cod populations, three of which have declined by 90% or more since the 1960s. Continuing directed fisheries and bycatch, combined with major changes in marine food webs in some areas, have significantly reduced the ability of cod populations south of Baffin Island to rebuild. Additionally, these four populations have diminished to the extent that they are predicted to experience serious or irreparable harm; as such, all four were assessed as Endangered.

Is Canada's Tallest Bird recovering from the Brink of Extinction?

Standing the same height as an average person, the Whooping Crane has increased in numbers since it hit an historic low of only 14 birds in 1938. Originally decimated by unregulated hunting and loss of habitat throughout its North American range, the bird still faces multiple threats including ongoing degradation of over-wintering habitat along the coast of Texas. All of the nesting habitat for the only wild population is protected in Canada's Wood Buffalo National Park which is also a UNESCO World Heritage Site. Despite heroic international efforts to recover this species, the Whooping Crane is still considered highly vulnerable to extinction given that the population currently numbers fewer than 250 individuals. The species was re-assessed as Endangered.

Photo @ Gordon Court

Imminent Extinction for a Bumble Bee?

The Rusty-patched Bumble Bee was once an important pollinator, especially for early and late flowering native plants in southern Ontario. Despite extensive surveys over the past decade, only 3 individuals of this distinctive bee have been found, all at one site. Rapid declines of the Rusty-patched Bumble Bee coincide with similar trends in bees globally; the reason remains a mystery but possible factors include pesticides, disease and parasites, and loss of habitat. The committee assessed this bee as Endangered, reflecting the increasing concern for ecologically and economically important pollinators worldwide.

Climate Change Takes its Toll in Western Canada

Climate change is increasing the risk of extinction for many wildlife species. For instance, high-elevation species like the Whitebark Pine of the Coast and Rocky Mountain ranges are predicted to run out of habitat as temperatures rise. The principal threat to this tree is an infectious fungus called Blister Rust, but the cumulative impacts of climate change, Mountain Pine Beetle infestations and fire suppression have all contributed to an ongoing population reduction of 70%, resulting in an assessment of Endangered. Climate change is also a contributing factor in the loss of habitat for the charismatic Flammulated Owl, a small bird dependent on the mature coniferous forests of British Columbia's interior regions. The Mountain Pine Beetle, no longer kept in check by cold winters, is reducing habitat quality for this bird. This, in combination with ongoing logging of mature trees and the potential for an increase in catastrophic forest fires, led to a designation of Special Concern for the owl.

Freshwater Mussels at Risk in Ontario Rivers

Southern Ontario is a hotbed for freshwater mussel diversity. This region also has one of the greatest concentrations of at-risk aquatic wildlife species in Canada owing in part to spreading urban and industrial development, agriculture and invasive species. The Wavy-rayed Lampmussel, once a common mollusc in streams of the Great Lakes basin, rapidly declined with the expansion of large-scale agriculture and the spread of invasive Zebra Mussels. Although recent surveys suggest greater numbers of Wavy-rayed Lampmussel than previously estimated, resulting in a change of status from Endangered to Special Concern, there are still 11 species of Endangered mussels in Ontario.

Evolution on display in British Columbia's Freshwaters

British Columbia is home to endemic wildlife species found nowhere else on the globe. A unique geological and glacial history has resulted in many opportunities for rapid evolution and speciation in the province. Nowhere is this more evident than on BC's Texada Island where two unique forms of Threespine Stickleback occur in two watersheds. In both cases, these small fishes have evolved into two distinct species pairs in less than 10,000 years. Invasive species and habitat alterations represent very real extinction risks, and both species pairs of stickleback were re-assessed as Endangered.

Next meeting

COSEWIC's next scheduled wildlife species assessment meeting will be held in Ottawa, ON, November 22-26, 2010.

About COSEWIC

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There are now 602 wildlife species in various COSEWIC risk categories, including 262 Endangered, 151 Threatened, 166 Special Concern, and 23 Extirpated (i.e. no longer found in the wild in Canada). In addition to these wildlife species that are in COSEWIC risk categories, there are 13 wildlife species that are Extinct.

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Fisheries and Oceans Canada, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members, and the co-chairs of the Species Specialist and the Aboriginal Traditional Knowledge Subcommittees.

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**denotes a COSEWIC risk category*

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In 2010, the United Nations International Year of Biodiversity, people around the world will step up efforts to slow down the widespread rapid rate of biodiversity loss. As well, throughout the year, communities will celebrate the amazing diversity of life on the planet.

APPENDIX III

COSEWIC Aboriginal Traditional Knowledge (ATK) Process and Protocols Guidelines

Produced by COSEWIC's ATK Sub-Committee
(Created Sept. 2006; Revised in May 2007, Feb. 2008, Sept 2009)

Approved by COSEWIC's ATK Sub-Committee in October 2009
Approved by COSEWIC in April 2010

Preamble

When available, guidance on the process and protocols used to gather ATK from Aboriginal persons or communities will be provided by that community.
However, when such guidance is not established, the ATK Sub-Committee (ATK SC) of COSEWIC recommends the use of the *COSEWIC ATK Process and Protocol Guidelines* described herein.
Furthermore, initial contact information will be provided to contractors by the ATK SC of COSEWIC.

Purpose of the COSEWIC ATK Process and Protocols Guidelines

These guidelines outline an approach as well as specific steps to facilitating access to and the gathering of the available Aboriginal Traditional Knowledge (ATK) as well as the incorporation of that knowledge into the COSEWIC species status assessment process. These guidelines are intended to be comprehensive such that they meet the requirements of diverse Aboriginal groups (cultures, organizations, councils, communities, TEK oversight committees, etc.).

> Description of ATK: ATK is based on the knowledge of the relationships between humans, wildlife, spirituality, environmental conditions, and land forms in a defined locality and, frequently, over lengthy time periods. ATK is the term used by the COSEWIC ATK SC and others to describe the complex and unique knowledge and knowledge systems held by Aboriginal Peoples. Bringing together ATK and Western Science knowledge will benefit species by providing another perspective for COSEWIC's wildlife species assessments.
>
> Approach to receiving ATK: Aboriginal Traditional Knowledge is a significant gift given by the Creator. When it is shared, ATK should be treated with respect and integrity and used only for its intended purpose, in this case, for the benefit of that particular species. The receiver is expected to follow these guidelines when receiving gifts of knowledge and information from ATK Holders.

Ecosystem Approach: ATK is typically interconnected and interrelated to information about multiple wildlife species, including humans, within the habitat, community or ecosystem. For this reason, and through the advice of Elders and ATK Holders, the ATK SC supports an ecosystem approach that considers ways to incorporate this into the existing wildlife species assessment process.

The Eight Steps of the COSEWIC ATK Process and Protocols Guidelines

1. Community Approvals
2. Ethics Review
3. Completion of any Required Permits
4. Acquisition of Participant's Prior Informed Consent
5. Interview with ATK Holder(s)
6. Information Review with ATK Holder(s)
7. Integration of ATK into species status report
8. Post Wildlife Species Assessment Meeting Communication with ATK Holders

Guiding Principles of the COSEWIC ATK Process & Protocols Guidelines

The ATK SC is guided in carrying out its functions by the following principles. The ATK SC recommends that contractors also abide by these same principles.

1. Subject to the terms of self-government and land claims agreements, Aboriginal communities are presumed to be the primary bodies to facilitate access to ATK in the assessment and classification of species at risk. Access is subject to local laws, protocols and practices.

2. In order to use Aboriginal Traditional Knowledge in the assessment and classification of species at risk, permission must be secured from the ATK Holders of such knowledge.

3. Aboriginal Traditional Knowledge used in the assessment and classification of species at risk is to be treated as public knowledge only with the approval of the ATK Holders of such knowledge. It is to be organized and presented in a culturally-appropriate, timely and thorough manner, and - to the extent possible - in such a way as to be comprehensible by both Aboriginal and non-aboriginal persons.

4. ATK is to be given equal recognition and value with western Science and Community Knowledge.

The Development of the COSEWIC ATK Process and Protocol Guidelines

Working Group Members: from the ATK SC:
Norma Kassi (Lead) Josephine Mandamin
Gabriel Nirlungayuk Donna Hurlburt
Dan Benoit

With support from the COSEWIC Secretariat:
Gloria Goulet Neil Jones

☑ 1) The COSEWIC Secretariat was directed to prepare and distribute information from available sources to initiate discussion.

☑ 2) The Process & Protocol Working Group met on August 2nd and September 8th, 2006, via teleconference, to prepare draft recommendations.

☑ 3) The *Draft ATK Process & Protocol Guidelines* were approved by ATK SC members at their September 26 & 27, 2006 meeting in St. Andrews, NB.

☑ 4) Facilitated workshops were held in 2008 and 2009 in which Aboriginal Elders and ATK Holders reviewed the *Draft ATK P&P Guidelines* and provided advice and guidance. Their input has been included in versions of the draft.

Elders / ATK Holder Workshops' locations and dates include:

- Ontario Elders Workshop, Thunder Bay, ON, February 2008;
- West Elders Workshop, Edmonton, AB, March 2008;
- East / Quebec Elders Workshop, Halifax, NS, October 2008;
- North Elders Workshop, Rankin Inlet, NU, July 2009.

☑ 5) The version of the *Draft COSEWIC ATK Process and Protocol Guidelines* required a review from Elders and ATK Holders before implementation by COSEWIC and the COSEWIC ATK SC.

Elders Review Meeting, Sault Ste. Marie, ON, October 2009.

List of Appendices

Appendix 1. Acronyms and Glossary of Terms used in these Guidelines and in SARA.
Appendix 2. Examples of Aboriginal Protocols Resources
Appendix 3. Examples of Ethics Review Resources

The Eight Steps for the gathering and incorporation of ATK into the assessment of wildlife species by COSEWIC

Step #1 - Community Approvals

The approval process for conducting an ATK gathering project is hierarchical. Also, it requires information be provided to participants throughout.

a.) Produce a Project Information Sheet (print 2 sides, so result is a single sheet)
- Purpose of the project (1/2 pg); (including a statement "Discussions on this species will not to be considered part of a Consultation process." It will also include the date of the Wildlife Species Assessment Meeting)
- the COSEWIC ATK principles (taken from this guidelines document) (1/2 pg);
- the potential risks and benefits of participation for the community and/or ATK Holder(s) and the species (1/2 pg);
- contact and follow up information ie. COSEWIC and SARA websites (1/2 pg)

b.) Produce a Legal Considerations Information Sheet(s) containing
- methods for ensuring Aboriginal rights to Ownership and Control of their information and protection of ATK.
- method for sharing of government information to the public via ATIP (Access to Information and Privacy). Therefore, only non-sensitive information should be provided to government representatives.

c.) Initially, heads of First Nations, Inuit and Métis nations or communities will be approached by members of the ATK SC (or the *national Aboriginal TK Holders network*) providing the required information described above to seek approval to contact the relevant community group or member (such as an ATK Oversight Committee where established). The ATK SC can also ask whether there is any process and protocol guidelines or ethics review processes already in place. The ATK SC can also ask if there is a member of the community to act as a project liaison who could assist with identifying relevant ATK Holders in the community. The liaison could also facilitate Aboriginal language translation when required.

d.) From ATK SC members and/or the COSEWIC Secretariat's ATK Coordinator, the ATK project contractor will then be provided with the contact information along with basic knowledge such as the Aboriginal group's cultural practices, language(s) and traditions. This information is needed to ensure they approach the ATK Holder in a respectful, culturally-appropriate manner, recognizing they are equal partners in the information sharing process.

e.) The contractor will contact the ATK oversight committee or relevant community group contact to seek approval for approaching the ATK Holder(s). If approved, the contractor will be provided with specific instructions for contacting and meeting with ATK Holder(s).

Step #2 - Ethics Review

Since ATK gathering projects involve human participants, an Ethics Review may be required. The review may be used to ensure research participants are treated respectfully, that their knowledge is appropriately recognized, and that the project adheres to the principles stated in the *COSEWIC ATK Process and Protocols Guidelines*.

The Ethics Review of the ATK gathering project may be launched automatically during the Stage #1 Approval Process where Aboriginal organizations or communities have the capacity, or by the COSEWIC ATK SC.

Step #3 – Completion of any Required Permits

The COSEWIC Secretariat's ATK Coordinator and/or the ATK SC will assist the contractor to identify and apply for required ATK project / research permits to meet the requirements that may exist in provinces, territories, Wildlife Management Boards, Aboriginal organizations and communities.

Step #4 – Acquisition of the Participant's Prior Informed Consent (PIC)

As part of the community approvals process described above, ATK Holders will be asked to sign a PIC form. The form must include information required to make an informed decision on whether to participate in the ATK gathering project. The purpose of the project and all stages from interview to incorporation of their ATK into the species assessment process will be clearly described in plain language. ATK Holders can request the PIC form be translated to their language. The PIC form is used to signify their understanding of the purpose of the project and how it may affect them and the species under consideration. However, signing the PIC form does *not* affect an ATK Holder's right to withdraw their contribution from the project at any stage prior to the *Wildlife Species Assessment Meeting* where the species status will be assessed by COSEWIC. However, it is recommended to do by the date that is 3 months prior to the meeting. The date of that meeting, and the subsequent 3 months prior target date to revise or remove ATK, will be indicated on the Project Information Sheet.

Step #5 – Interview with the ATK Holder(s)

Interviews may be one-on-one or in a group setting. They may be conducted in a place where the ATK Holder(s) are most comfortable. This may be in their own home, a community building, a public location such as a coffee shop or when feasible out on the land. To aid in the discussion, contractors will provide maps and accurate photos of the species and ensure they are available during the interview. Particularly for group settings, biologists may be invited to visit the community and share information from related relevant research projects.

To address ATK Holder ownership, control and protection of ATK, the contractor will transcribe interview notes/tapes information as quickly as possible so that notes and records can be returned or destroyed as soon as possible.

The interview will also include questions to identify the ATK Holder's experience and species expertise. Answers to such questions, along with community and ATK SC member recognition of the ATK Holders expertise, will function as a verification process to ensure acceptability of the ATK by the contractor or ATK SC.

Step #6 - Information Review

Information Review with ATK Holder(s).

All original interview notes & tapes (audio and video) will remain in the community to avoid intentional and unintentional dissemination of raw data. The contractor will take only the relevant information and produce a summary for the ATK Holder(s) review and approval. The contractor will take only the approved summarized version of information that has been approved by the ATK Holder or community.

Sensitive information on the location of a species or its habitat may be important for COSEWIC assessments. If COSEWIC considers that restricting the release of the information would be in the best interest of the species, COSEWIC can advise the Minister of the Environment to withhold such information in the published status report. (SARA s.124)

ATK Holders will review and approve the summarized version of the ATK before it is included in the status report. Biologists may be invited by the community to visit the community to review the collective information from the project. ATK Holders have the right to refuse to give approval at any stage prior to the *Wildlife Species Assessment Meeting* where the species status will be assessed by COSEWIC. However, it is recommended to do so by the date that is 3 months prior to the meeting. The date of that meeting, and the subsequent 3 months prior target date to revise or remove ATK, will be indicated on the Project Information Sheet.

Step # 7 - Integration of ATK into species status report

Content of the ATK reviews will be incorporated in the species status report by the status report writer. ATK content of Draft Status report is then reviewed by ATK SC and ATK Review Team during the review of the draft status report. Report writer then incorporates suggestions into the report in consultation with the SSC Co-chair.

Step #8 - Post Wildlife Species Assessment Meeting Communication with ATK Holders

Within one week of the end date of the Wildlife Species Assessment Meeting, an email, or letter when necessary, will be sent to all ATK Holders who were involved in the ATK gathering for the species that were assessed at that Wildlife Species Assessment Meeting. Similar to media releases, this email or letter will indicate the decision made by COSEWIC regarding their recommendation of status.

Appendix 1 – Acronyms and Glossary of terms used in these guidelines and in SARA

For the meanings of terms in this Appendix, refer to the section entitled Definitions and Abbreviations on the COSEWIC/COSEPAC website (http://www.cosewic.gc.ca/eng/sct2/sct2_6_e.cfm)

- Aboriginal Traditional Knowledge Subcommittee
- Area of Occupancy
- Assessment Criteria
- Best Available Information
- Canadian Range of Occurrence
- Canadian Wildlife Species at Risk
- CDC: Conservation Data Centre
- CESCC: The Canadian Endangered Species Conservation Council
- CITES: The Convention on International Trade in Endangered Species
- COSEWIC: Committee on the Status of Endangered Wildlife in Canada.
- COSEWIC Candidate List
- CWDC: The Canadian Wildlife Directors Committee
- CWS: Canadian Wildlife Service of Environment Canada.
- Data Deficient (DD)
- Designatable Unit (DU)
- DFO: The federal Department of Fisheries and Oceans.
- Endangered (E)
- Extinct (X)
- Extirpated (XT)
- Federal Biodiversity Information Partnership (FBIP)
- Genetically Modified Organisms
- Imminent Extirpation or Extinction
- IUCN: World Conservation Union (formerly known as the International Union for the Conservation of Nature)
- Jurisdiction
- Living Document
- NACOSAR: The National Aboriginal Council on Species at Risk
- Native Wildlife Species
- Natural Range
- Non-government Science Member
- Not at Risk (NAR)

- Population
- Re-introduction
- Special Concern (SC)
- Species Specialist Subcommittee (SSC)
- SSC Candidate List
- Status Assessment:
- Status Report
- Threatened (T)
- Wildlife Species

Appendix 2 – Examples of Aboriginal Protocols Resources

Alberta Traditional Knowledge handbook
http://www.aboriginal.alberta.ca/documents/tsu_BP_Internet_Handbook.pdf

West Kitikmeot/Slave Study (WKSS)

A set of guidelines for researching Aboriginal Knowledge was developed by the study for these projects: Tuktu & Nogak Project, Caribou Migration and the State of their Habitat, The Habitat of Dogrib Traditional Territory: Place names as Indicators of Biogeographical Knowledge and TK Study on Community Health.
http://www.enr.gov.nt.ca/_live/documents/documentManagerUpload/West_Kitikmeot_Slave_Study_Project_Overview.pdf

The Convention on Biological Diversity - source for multiple documents on guidelines and protocol development
http://www.cbd.int/tk/

GNWT Traditional Knowledge policy
http://www.enr.gov.nt.ca/_live/documents/documentManagerUpload/Traditional_KnowledgePolicy.pdf **and**

GNWT Traditional Knowledge Policy Implementation Framework and ENR Traditional Knowledge Plan
http://www.enr.gov.nt.ca/_live/documents/documentManagerUpload/GNWT_Traditional_Knowledge_Implementation_Plan.pdf

Gwich'in Social and Cultural Institute (GSCI) - contact them to see if draft policy for ATK guidelines is ready for distribution
http://www.gwichin.ca/Research/research.html

Building Relations with First Nations*: A Handbook for Local Governments* – by the Union of BC Municipalities and the Lower Mainland Treaty Advisory Committee.
http://www.archaeologywithoutreserve.com/Lower%20Mainland%20Treaty%20Advisory%20Comimttee%202006%20Building%20Relationships%20with%20First%20Nations%20a%20Handbook%20for%20Local%20Governments.pdf

Inuit Tapiriit Kanatami.
http://www.itk.ca/sites/default/files/Negotitiating-Research-Relationships-Researchers-Guide.pdf

Igloolik Research Institute
http://www.nri.nu.ca/igoolik.html

Mackenzie Valley Impact Review Board
http://www.reviewboard.ca/upload/ref_library/1247177561_MVReviewBoard_Traditional_Knowledge_Guidelines.pdf

Gwich'in Environmental Knowledge Project
http://www.grrb.nt.ca/traditionalknowledge.htm

The Inuit Bowhead Knowledge Study - by Nunavut Wildlife Management Board
http://www.nwmb.com/english/resources/Bowheadreport1.pdf

Links to international sites for policy development (see Australia and New Zealand, etc.) – by the Panel on Research Ethics
http://www.pre.ethics.gc.ca/eng/resources-ressources/links-liens/

Mi'kmaw Research Principles & Protocols – by the Mi'kmaq College Institute of Cape Breton University
http://mrc.uccb.ns.ca/prinpro.html

Akwesasne Task Force on the Environment, (1996). Protocol For Review of Environmental and Scientific Research Proposals
http://www.northnet.org/atfe/webdocs/atfe_protocol.pdf

Australian Broadcasting Corporation. (1999) Ethics and Codes of Conduct
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Assembly of First Nations. 2007. **OCAP - Ownership, Control, Access and Possession, First Nations Inherent Right to Govern First Nations data** http://www.afn.ca/misc/ocap.doc

Appendix 3 - Examples of Ethics Review Resources

1. Guidelines for Scientific Activities in Northern Canada, DIAND, 1976
2. Ethical Principles for the conduct of research in the North, 1982
3. Dene Nation: participatory research process for Dene/Metis communities, 1993
4. ITK background paper on negotiating research relationships, 1994
5. Kahnawake Code of Research Ethics, 1997
6. James Bay Cree Board of H&SS, code of research ethics, 2001
7. Tri-Council Policy Statement (MRC, NSERC and SSHRC 1998)
8. Ethical Principles for the Conduct of Research in the North (ACUNS 1998)

APPENDIX IV

Biosketches of Proposed New / Renewed Members

Nominee for Renewal
Co-Chair, Amphibians & Reptiles Specialist Subcommittee
(1 year term January 1, 2011 – December 31, 2011)

Dr. Ronald J. Brooks

Dr. Ronald J. Brooks is the current co-chair the Amphibians & Reptiles Specialist Subcommittee of COSEWIC and is a Professor of Zoology at the University of Guelph. Dr. Brooks has held the Amphibians & Reptiles Specialist Subcommittee co-chair position on COSEWIC since 1995 and has also been a member of a plethora of working groups on COSEWIC. He was the president of the Canadian Association of Herpetologists from 1996 to 2002 and has served as a member of the Board of Directors, Canadian Amphibian and Reptile Conservation Network since 1997. He has also been a member of the IUCN Species Survival Commission – Tortoises and Turtles since 1996. From 2008-2010, he was also a member of COSSARO (Committee on the Status of Species at Risk in Ontario). Dr. Brooks was a member from 2004-2006 of the Scientific Advisory Committee of the Endangered Species Recovery Team of World Wildlife Canada and serves on the recovery teams for Blue Racer, Wood Turtle, Eastern Foxsnake, Eastern Hog-nosed Snake, and Queensnake and currently (2007-2010) is co-chair of OMSTARRT (Ontario Multispecies Turtles at Risk Recovery Team).

Dr. Brooks has published about 120 articles in scientific journals. His research on reptiles now covers all eight of Canada's extant freshwater turtles with some projects extending back to the 1970s. In addition, Dr. Brooks' students have worked on several species of snakes, including the Blue Racer, Eastern Foxsnake, DeKay's Brownsnake, Lake Erie Watersnake and Eastern Hog-nosed Snake. These studies have focused on life history, ecology, demography, conservation, embryonic development, sex determination and hatching success. Dr. Brooks has also published papers on leeches, earthworms, fish, mites, dipteran flies, lemmings, voles, deer mice, wolves, caribou and beaver, and was, until 2009, director of the longest-running (58 years to date) monitoring study of small mammals in North America or perhaps the world.

Dr. Brooks recently received the Blue Racer Conservation Award from the Canadian Amphibian and Reptile Conservation Network.

Nominee - New
Co-Chair, Amphibians & Reptiles Specialist Subcommittee
(4 year term January 1, 2011 – December 31, 2014)

Dr. Kristiina Ovaska

Kristiina Ovaska, Ph.D, M.Sc. received her doctoral degree in biology from the University of Victoria in 1987, after which she completed two post-doctoral studies in population biology and behavioural ecology of amphibians (with McGill University and University of British Columbia, respectively). Currently she is senior ecologist and partner at Biolinx Environmental Research Ltd., Victoria, B.C. and research associate at the Department of Forest Sciences, University of British Columbia.

Over the past 20 years, Dr. Ovaska has studied behaviour and ecology of amphibians and reptiles in western North America, Central America, and the West Indies. Her research has addressed various topics related to social behaviour, interspecific interactions, habitat use, and effects of human activities. Dr. Ovaska has designed and implemented several long-term environmental monitoring studies and has carried out numerous surveys and habitat assessments for amphibians, reptiles, and turtles, focusing on species at risk. She is currently working with landowners to protect species at risk on private lands through habitat restoration and stewardship activities. In addition to amphibians and reptiles, Dr. Ovaska has expertise on forest floor invertebrates, particularly terrestrial gastropods. She is the author of over 40 publications in the scientific literature, many of them on amphibians and reptiles. She has prepared numerous COSEWIC status reports and recovery strategies, and is a member of two recovery teams and two COSEWIC Specialist Subcommittees (for molluscs and for amphibians and reptiles).

Nominee for Renewal
Co-Chair, Arthropods Specialist Subcommittee
(1 year term January 1, 2011 – December 31, 2011)

Dr. Laurence Packer

Dr. Laurence Packer is a full professor in the Department of Biology, Faculty of Science and Engineering, at York University in Toronto. He has been at York since 1988. Prior to that, he was a Post-Doctoral Research Fellow in the Department of Biological Sciences at the University of Calgary (1987-88) and an Assistant Professor of Biology at the University College of Cape Breton (1986-87). He received his Ph.D. from the University of Toronto in 1986.

Dr. Packer is a prolific researcher with over 100 primary publications, many of them in high impact journals, on the biology, systematics, behaviour, conservation genetics and biodiversity of insects, mainly bees. He is a recognized expert on bees who has obtained numerous research grants. He is a member of the editorial board for three journals, including the Canadian Journal of Zoology. He has supervised over 20 Masters and Ph.D students. He has taught undergraduate courses in entomology, biodiversity, systematics and evolution and graduate courses in ecology, entomology,

phylogenetics and the biology of bees. Dr. Packer has been a member of COSEWIC and Co-chair of the Arthropods Subcommittee for 4 years He has worked on the insects of oak savanna and tallgrass prairie habitats in Ontario, wrote the COSEWIC status report on the Frosted Elfin butterfly and a status report on the Karner Blue butterfly for the World Wildlife Fund and the Ontario Ministry of Natural Resources, and is a member of the Karner Blue recovery team. His forthcoming book - "Keeping the Bees" deals with the importance and conservation of bees.

Dr. Packer has extensive experience serving on major committees both within and outside the University, including search committees for new faculty members, the departmental chair and NSERC review panels. He has chaired the tenure and promotion committee for the Biology Department at York University. He is described as fair, organized and hardworking, and as someone with good interpersonal skills who is articulate, listens well and "gets the job done."

Nominee for Renewal
Co-Chair, Birds Specialist Subcommittee
(4 year term January 1, 2011 – December 31, 2014)

Dr. Marty L. Leonard

Dr. Marty Leonard is the current Co-Chair of the Birds Specialist Subcommittee of COSEWIC and lives in Halifax, Nova Scotia, where she is a full Professor at Dalhousie University. Dr. Leonard earned her B.Sc. at the University of Guelph, her M.Sc. at Carleton University and her Ph.D. at the University of Ottawa in 1987. She conducted post-doctoral work at Queen's University and at Cambridge University and has also been a Research Fellow at the Australian National University. In 2003, Dr. Leonard won the Dalhousie Alumni Association Award for excellence in teaching.

Dr. Leonard is widely published with nearly 80 authored and co-authored publications in the primary literature (and books) on a variety of bird species including Tree Swallows; Marsh Wrens, Red-winged Blackbirds; Bicknell's Thrush; Roseate Terns, Common Moorhens, Fork-Tailed Storm-Petrels, Humboldt Penguins, as well as mammals such as the Spotted Bat, Grey Seals and Polar Bears. Her current interests revolve around the effects of noise on parent-offspring communication, conservation of endangered birds, the function and design of avian begging signals and the role of error in the evolution of animal signals.

Dr. Leonard has considerable knowledge of the biology and conservation of birds, including endangered species, and especially of birds in Eastern Canada.

She has been Co-chair of the Birds Specialist Subcommittee of COSEWIC since 2003, is a member of the Nova Scotia Species at Risk Working Group, which also uses COSEWIC criteria, and has served on the Scientific Advisory Committee of World Wildlife Fund's Endangered Species Recovery Fund, and serves on the national and Nova Scotia Roseate Tern Recovery Teams.

Dr. Leonard has reviewed numerous articles, grant applications, reports and theses over her 25 year academic career, and has served on the editorial board for Biology text books and two peer-reviewed journals. Her experience on COSEWIC, the Nova Scotia Species at Risk Working Group and the Roseate Tern Recovery Team has shown that she has the ability to work in a consensus-based decision-making environment.

Nominee - New
Co-Chair, Marine Fishes Specialist Subcommittee
(4 year term January 1, 2011 – December 31, 2014)

Dr. John Reynolds

Dr. Reynolds has a PhD from the University of Toronto (1991). He is currently a full professor and holds the *Tom Buell BC Leadership Chair in Aquatic Conservation* at Simon Fraser University. Prior to that, he spent 13 years on faculty at the University of East Anglia, UK. This included a Chair in Conservation Ecology and Directorship of the biology department's Population and Conservation Biology Sector, representing 14 faculty members.

Dr. Reynolds' research focuses on fish ecology and fisheries sustainability, including extinction risk for both freshwater and marine species. He has participated in workshops on threat criteria for both COSEWIC and the World Conservation Union (IUCN), with a particular interest in methods for assessing threat status of marine fishes. Since his return to Canada with his appointment at Simon Fraser University in 2005, he has focussed on conservation of salmon and links to sustainability of ecosystems.

Dr. Reynolds has served on the Science Advisory Committee for the B.C. Pacific Salmon Forum as well as the Independent Science Review Panel that advised federal and provincial agencies on fisheries in the Skeena River. He presently serves on the boards of the Vancouver Aquarium, the Fraser River Sturgeon Conservation Society, and is a member of the Science Advisory Panel of the Cohen Commission, which is a judicial review examining declines in Fraser River sockeye salmon.

Over his career he has published 150 scientific papers and five books examining ecology and conservation of fish and other animal species. He has edited three journals and has co-organized a symposium for the 2010 Society for Conservation Biology Congress examining status and trends of Canada's biodiversity. Dr. Reynolds was awarded the medal of the Fisheries Society of the British Isles in 2000, the Stevenson Award from the Canadian Conference for Fisheries Research in 2003, and an NSERC Accelerator award in 2007.

Nominee - New
Co-Chair, Molluscs Specialist Subcommittee
(4 year term January 1, 2011 – December 31, 2014)

Dr. Gerald L. Mackie

Dr. Mackie has been working with freshwater invertebrates with emphasis on molluscs for 40 years. He has authored or co-authored five books, 15 chapters in books, over 150 peer-reviewed journal articles, 25 peer-reviewed conference proceedings and numerous technical and government publications. Kendall-Hunt Publishing Company published two editions (1996, 2004) of his text book, "Applied Aquatic Ecosystem Concepts"; CRC Press published, "Practical Manual for Zebra Mussel Monitoring and Control" in 1994. His life work with sphaeriid clams culminated in his book, "Biology of Freshwater Corbiculid and Sphaeriid Clams of North America", published by Ohio Biological Survey in 2007. His experiences with freshwater and terrestrial life are offered to cottagers in his book, "The Cottage Bible", published by Boston Mills Press in 2007. His newest book, "Monitoring and Control of Macrofouling Mollusks in Freshwater Systems" describes 15 nuisance molluscs and is published by Taylor & Francis. Dr. Mackie is also an associate editor of EcoScience.

While professor at the University of Guelph, Dr. Mackie studied the ecology of benthic invertebrates (especially molluscs) and impacts of nutrient enrichment, acid precipitation, and aquatic invasive species on them, and most recently the development of recovery strategies for mussel species at risk. He taught courses on Aquatic Biology, Limnology and Oceanography. Biology of Freshwater Pollution, Biology of Running Waters, and Introduction to Aquatic Environments. He has supervised 29 graduate students, many of whom are currently professors at universities, senior researchers or department heads in government, industry, or consulting firms.

Dr. Mackie formed Water Systems Analysts in 1990, specializing in the monitoring and control of zebra mussels. The current emphasis of his sole proprietorship is risk assessment of industries and utilities to aquatic invasive molluscs and surveys, relocations and monitoring of mussel species at risk.

Dr. Mackie received a B.Sc. Biology, from Laurentian University, a M.Sc. (Honours), Biology and Ph.D., Biology, from University of Ottawa. From 1972 to 1974 he did a Postdoctorate with the Canadian Museum of Nature, Ottawa and taught at the University of Guelph in the Department of Zoology/Integrative Biology 1974-1981 as Assistant Professor, 1981-1988 as Associate Professor, 1988-2003 as Professor and 2003-present as Professor Emeritus.

Dr. Mackie was a Co-Chair of the Mollusc Species Specialist Subcommittee, COSEWIC from 1996 to 2006. Since SARA was proclaimed in June 2003, he has been active in protecting and recovering mussel species at risk. He is the lead author in developing, "Protocol for detection and relocation of freshwater mussel species at risk in Ontario Great Lakes Area", 2008. He is a member of three mussel recovery teams in Southern Ontario. In 2009, Dr. Mackie was awarded a lifetime achievement award by the Freshwater Mollusk Conservation Society recognizing his long-term contributions that have advanced the conservation and science of freshwater molluscs at the national and international level.

Nominee - New
Co-Chair, Mosses & Lichens Specialist Subcommittee
(4 year term January 1, 2011 – December 31, 2014)

Dr. David Richardson

Dr. David Richardson was born in the United Kingdom. He received a M.Sc in Mycology at Nottingham University and a doctorate at Oxford University where he studied carbohydrate physiology of lichens. He began teaching at Exeter University in the United Kingdom but moved to Laurentian University in Sudbury where he linked up with Dr Evert Nieboer, a chemist, to carry out extensive studies on the effects of pollution on lichens. In 1980 he became Professor of Botany at Trinity College Dublin, Ireland and in 1992 returned to Canada as Dean of Science at Saint Mary's University, Halifax, Nova Scotia. He held this post until his retirement in 2007 and currently holds an appointment as Dean Emeritus at that university.

Dr. Richardson has written three books as sole author (The Vanishing Lichens, The Biology of Mosses, and Pollution Monitoring with Lichens). In addition he has published over 100 research papers and book chapters on various aspects of lichenolgy. Recently completed studies by Dr. Richardson include one on the lichens of Sable Island and the preparation of a COSEWIC report on the lichen *Degelia plumbea*. He was awarded the Lawson Medal in 2000 by the Canadian Botanical Association for his outstanding contributions to research, teaching and administration. In 2002, he was presented with the Ursula Duncan Award for International Lichenology by the British Lichen Society following delivery of the 2002 Swinscow lecture at the Linnean Society in London.

Dr. Richardson has extensive experience as a chairperson. As Professor and Head of Department at Trinity College Dublin from 1980-1992, he chaired regular departmental meetings and for several years chaired the University Graduate Studies Committee. As President of the British Lichen Society he undertook the same role for the quarterly meetings of Council from 1990-1992. Upon his return to Canada, as Dean of Science from 1992 to 2007 he chaired the Science Executive Meetings and was Vice-Chair of the Atlantic Council on the Sciences (APICS) for many years. He also chaired the Sumner Memorial Fellowship Committee for Scotia Bank. He is current President of the Nova Scotian Institute of Science and chairs the Council Meetings held monthly from October to May each year.

Nominee - New
Co-Chair, Terrestrial Mammals Specialist Subcommittee
(4 year term January 1, 2011 – December 31, 2014)

Dr. Graham Forbes

Dr. Graham Forbes has served on the Terrestrial Mammal Committee for the last 3 years. He presently is Professor, cross-appointed in Biology and Forestry and Environmental Management at the University of New Brunswick, in Fredericton, where he has worked since 1993. Graham is Director of the New Brunswick Cooperative Fish and Wildlife Research Unit, the Sir James Dunn Wildlife Research Centre, and the Greater Fundy Ecosystem Research Project, all initiatives aiming to increase cooperative wildlife research among academia, industry and government.

Dr. Forbes graduated from a biogeoraphy specialization from York University and then did graduate work at the University of Waterloo on moose and forest management, and Algonquin wolves before moving to the Maritimes. He has worked on mammals from Manitoba to Newfoundland to the High Arctic, as well as in South America. Numerous research projects have been conducted on a range of mammals including shrews, black bears, wolves, microtine rodents, flying squirrels, white-tailed deer, mustelids, and bats. He has published over 60 peer-reviewed papers, 45 of which involved Canadian mammals.

In terms of experience in administration, Dr. Forbes was an organizer on a number of symposia and conferences, including bear management in Atlantic Canada, 3 Atlantic Society Fish and Wildlife Biologists annual meetings, and several conferences in the Atlantic region on forest ecology and management. He chaired the northern deer recovery committee in New Brunswick and the Biodiversity Committee of the Fundy Model Forest for several years. Presently, Dr. Forbes is Chair of the Minister's Science Advisory Committee on Protected Areas in New Brunswick.

Nominee – New
Co-Chair, Vascular Plants Specialist Subcommittee
(4 year term January 1, 2011 – December 31, 2014)

Dr. Jeannette Whitton

Dr. Jeannette Whitton is an Associate Professor at the University of British Columbia (Department of Botany, and Biodiversity Research Centre). She earned a B.Sc. at McGill University and a Ph.D. at the University of Connecticut for her work on the systematics and evolution of North American *Crepis* agamic complex. Following this, Dr. Whitton completed a Post-Doc at Indiana University. Her current work focuses on evolution, systematics and conservation genetics, working primarily with vascular plants in the sunflower family (e.g. *Lasthenia*, *Crepis*, and *Townsendia*). She has broad experience in population biology and systematics, and her work often involves her in allied disciplines (e.g. ecology). In addition to her laboratory and experimental work, Dr. Whitton has field botany experience on the Gaspe Peninsula, the Rocky Mountains, and the Pacific Coast.

Since 2000, Dr. Whitton has contributed 13 papers in peer-reviewed journals, four chapters in books, and was Co-editor of the book *Plant Adaptation: Molecular Genetics and Evolution*. She has supervised or co-supervised ten graduate students, and sat on a number of graduate advisory committees on a range of taxa, including vascular plants, fish and birds. Dr. Whitton is the Director and Curator of Vascular Plants at the UBC Herbarium, and serves as the Associate Director for the Beaty Biodiversity Museum.

Nominee - New
Non-government Science Member
(4 year term January 1, 2011 – December 31, 2014)

Dr. Tim Birt

Tim Birt completed a B.Sc. degree at the University of Prince Edward Island and M.Sc. and Ph.D. degrees at The Memorial University of Newfoundland. He then did postdoctoral studies at the Royal Ontario Museum. He is currently an Adjunct Assistant Professor of Biology at Queen's University. His research while a graduate student concentrated on ecological genetics of Atlantic salmon populations in Newfoundland with particular reference to sympatric anadromous and freshwater resident forms. More recent research activities have focused on conservation genetics of seabirds, especially North American murrelets. He has taught university courses, mostly field courses in fish biology at Queen's University Biological Station; he also taught a field course in wildlife conservation in Kenya.

Dr. Birt has conducted field research in many areas of Canada, including the Arctic, British Columbia, Yukon, P.E.I. and Newfoundland. He also served as Curator of Birds at Toronto Zoo (1995-1998), where he was responsible for management of the birds collection and was involved in conservation and education activities involving birds.

APPENDIX V

Terms of Reference Secretariat to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

Jointly approved by COSEWIC (Chair) and EC-Canadian Wildlife Service (Director General) on April 29, 2010

Context:

COSEWIC's mandate is to assess the conservation status of wildlife species that may be at risk in Canada, and to report the results of its assessments, including their reasons and uncertainties, to the Canadian Endangered Species Conservation Council (CESCC) and to the Canadian public.

COSEWIC was established in 1977 by Federal/Provincial/Territorial wildlife directors to address the need for a single, authoritative list of endangered species in Canada. From the onset, COSEWIC was tasked with providing independent, arm's-length expert assessments on the status of Canadian wildlife species. While its role has remained consistent, its operating practices have evolved. Initially supported by one full-time Secretary, the Committee now benefits from the administrative, technical and financial support provided by a professional Secretariat supported by the Canadian Wildlife Service, Environment Canada.

The context under which COSEWIC operates has evolved as well. The *Species at Risk Act,* proclaimed in 2003, established COSEWIC as an independent advisory body to conduct wildlife species status assessments. In support of COSEWIC, the Minister is required to "...provide COSEWIC with any professional, technical, secretarial, clerical and other assistance, and any facilities and supplies, that, in his or her opinion, are necessary to carry out its functions" (section 20). The Minister fulfils his/her obligation through the provision of the COSEWIC Secretariat. As with any government programs COSEWIC and the COSEWIC Secretariat have been subject to increased accountability and scrutiny with regards to COSEWIC's operations, procedures, expenditures and independence of advice.

The purpose of these terms of reference is to set out the key functions of the Secretariat as it assists COSEWIC in meeting its mandate. It outlines how the Committee and the Canadian Wildlife Service, Environment Canada will interact to guide the Secretariat in supporting the operations of the Committee.

Role:

The role of the COSEWIC Secretariat is to provide necessary support towards enabling COSEWIC to fulfill its role in an efficient and effective manner. In fulfilling its role, the Secretariat is bound by relevant Government of Canada regulations and policies.

Functions:

The COSEWIC Secretariat will have the following key functions:

To provide administrative services, such as organizing and servicing meetings, and technical support to COSEWIC and its subcommittees

To administer contracts for the preparation of COSEWIC products such as COSEWIC Status Reports

To maintain files, records and other archival materials

To administer the financial support provided to the Committee following Government of Canada regulations, standards, policies and guidelines

To prepare and annually revise a four-year rolling COSEWIC annual workplan based on the priorities of the Committee for approval by the Chair of COSEWIC

To prepare and annually revise a budget associated with the four-year rolling annual workplan for review by the Chair of COSEWIC and review and approval by the Director General of Canadian Wildlife Service, Environment Canada or his/her delegate

To release Committee decisions, including results of Committee assessments, and advice upon approval of the Chair of COSEWIC

To disseminate Committee-related information to the public, including the publication of status reports in both official languages

To undertake other specific tasks agreed between the Chair of COSEWIC and the Director General of the Canadian Wildlife Service or delegate

In order to support the efficient workings of the Secretariat, the Chair of COSEWIC will:

Act as the primary point of contact between COSEWIC and the Secretariat

Provide functional guidance to the Secretariat on matters related to COSEWIC activities noting that the activities of the Secretariat are guided by the priorities of the Committee.

Prepare, with the Secretariat, an annual report on COSEWIC activities and an annual COSEWIC workplan

Review the associated budget in a timely fashion

Assess the priority of proposed COSEWIC activities not previously agreed within the COSEWIC annual workplan

The Director General, Canadian Wildlife Service (or his/her delegate as appropriate) will:

Be responsible for decisions regarding the structure and staffing of the Secretariat

Provide direction to the Secretariat on Environment Canada policies and processes as they apply to the functioning and tasks of the Secretariat

Review and provide advice on the Secretariat's functions in delivery of the COSEWIC annual workplan

Review and approve the associated budget as part of the Environment Canada budget-planning process

The Manager, COSEWIC Secretariat will:

Act as the primary point of contact between the Secretariat and COSEWIC and the link between Environment Canada and the Committee, including supporting the Ministerial COSEWIC appointment process as needed.

Authorize and/or seek appropriate Environment Canada approval of financial expenditures associated with the COSEWIC annual workplan or other new COSEWIC activities identified as priority by the Chair of COSEWIC,

In as much as possible, facilitate an open and transparent exchange of information regarding decisions taken by COSEWIC or Environment Canada that may impact or influence the work of the other

On behalf of the Director General, ensure any Environment Canada decisions which may impact the functioning of the Secretariat are efficiently and effectively communicated to the Chair of COSEWIC in a timely fashion for his/her information and advice as appropriate (e.g., changes or reallocation of human resources, unexpected changes in budget allocation, policy changes regarding contracting, IT support, translation support, etc.)

On behalf of the Chair of COSEWIC, ensure any Committee decisions which may impact the functioning of the Secretariat are efficiently and effectively communicated to the Director General, Canadian Wildlife Service for his/her information and advice as appropriate (e.g., decisions to hold additional annual meetings, significant changes in the number or size of contracts the Secretariat administers on behalf of the Committee, significant changes in the number or complexity of subcommittees requiring Secretariat support etc.)

In undertaking these functions, Director General of the Canadian Wildlife Service of Environment Canada shall, in line with the Values and Ethics Code for the Public Service of Canada (http://www.tbs-sct.gc.ca/chro-dprh/pol/vec-cve-eng.asp), maintain confidentiality of COSEWIC proceedings or documentation related to species assessments, internal communications and other matters identified by the Chair as sensitive in so far as possible while respecting the requirements of Canada's Privacy Act and Access to Information Act, and shall ensure COSEWIC Secretariat staff do likewise.

Reporting Relationship

As employees of Environment Canada, members of the COSEWIC Secretariat are situated within the Canadian Wildlife Service's organizational hierarchy and report to a Director at the Canadian Wildlife Service who in turn reports to the Director General, Canadian Wildlife Service.

Conflict resolution involving the functions of the Secretariat will normally be addressed jointly by the Manager of the Secretariat and the Chair of COSEWIC with recourse to the Director General of the Canadian Wildlife Service.

These terms of reference will be jointly evaluated, re-considered and agreed every four years by the Chair of COSEWIC and the Director General, Canadian Wildlife Service, Environment Canada

APPENDIX VI

Terms of Reference COSEWIC Aboriginal Traditional Knowledge Subcommittee

Approved by COSEWIC and the Aboriginal Working Group on Species at Risk, including five National Aboriginal Organizations, in March 2004. Approved by CWDC and CESCC in September 2004.

Revised by COSEWIC in November 2009
Revised by COSEWIC in April 2010

COSEWIC uses the best available scientific, Aboriginal traditional and community knowledge to assess species at risk. The *Species at Risk Act* (Section 18(1)) requires that COSEWIC establish an Aboriginal Traditional Knowledge subcommittee.

Purpose

The Aboriginal Traditional Knowledge Subcommittee (the ATK Subcommittee) facilitates access to the best available Aboriginal Traditional Knowledge and the incorporation of that knowledge into the COSEWIC species status assessment and classification processes using approved ATK processes and protocols.

Guiding Principles

The Aboriginal Traditional Knowledge Subcommittee is guided in carrying out its functions by the following principles. Subject to the terms of self-government and land claims agreements, Aboriginal communities are presumed to be the primary bodies to facilitate access to Aboriginal Traditional Knowledge in the assessment and classification of species at risk. Access is subject to local laws, protocols and practices. Permission to use Aboriginal Traditional Knowledge in the assessment and classification of species at risk must be secured from the holders of such knowledge. Aboriginal Traditional Knowledge used in the assessment and classification of species at risk is to be treated as public knowledge only with the approval of the holders of such knowledge. It is to be organized and presented in a culturally-appropriate, timely and thorough manner, and - to the extent possible - in such a way as to be comprehensible by both Aboriginal and non-aboriginal persons.

Functions

The functions of the ATK Subcommittee are:

- To facilitate access to the best available Aboriginal Traditional Knowledge and the incorporation of that knowledge in the assessment and classification of species at risk using approved processes and protocols;
- To facilitate and, where necessary, participate - through reliance upon local holders of Aboriginal Traditional Knowledge - in the gathering of Aboriginal Traditional Knowledge in the assessment and classification of species at risk;
- To commission Aboriginal Traditional Knowledge Reviews, as needed, which collect and present Aboriginal Traditional Knowledge concerning eligible candidate species, and receive unsolicited Aboriginal Traditional Knowledge reviews;
- To work jointly with other COSEWIC subcommittees to:
  - develop a candidate lists of species for potential assessment by COSEWIC,
  - develop and put forward to COSEWIC priorities for assessment,
  - commission Species Status Reports; and
  - review unsolicited Status Reports
- To facilitate the delivery of the best available Aboriginal Traditional Knowledge on the status of a species under consideration by COSEWIC to the commissioned writer(s) of a Species Status Report;
- To review and advise on the adequacy of the Aboriginal Traditional Knowledge content of draft, interim and final Species Status Reports, and provide recommendations concerning the status assessments of particular species; and
- To promote a wider understanding of the nature and the benefits of Aboriginal Traditional Knowledge concerning the assessment and classification of species at risk.

Structure

Members

The ATK Subcommittee is composed of Aboriginal people experienced in Aboriginal Traditional Knowledge and wildlife species. The subcommittee normally has 12 members. All members are appointed by the Minister of the Environment on the basis of their experience concerning Aboriginal Traditional Knowledge after consultation with any Aboriginal organizations, normally a National Aboriginal Organization, he or she considers appropriate. Each member is appointed during good behaviour for a term of four years. A member may be re-appointed, and shall only be removed for cause.

The duties of Members are to:

- To perform their duties in an independent manner.
- To attend ATK SC, SSC, and other meetings in support of the functioning of the ATK SC.
- To develop and maintain relationships with ATK-holders and their communities
- To advise writers of status reports of known sources of ATK, suggest wildlife species for candidate lists, facilitate access of contractors to knowledge holders or ATK using approved protocols, review draft and interim reports, and provide regional expertise on the status of, and threats to wildlife species.
- To facilitate the access to relevant ATK for wildlife species assessment using appropriate processes and protocols related to ATK gathering.
- To review draft and interim status reports for ATK content and contribute to status assessment deliberations to the best of their knowledge and ability.

Co-chairs

The members select, from among the membership, two ATK Subcommittee Co-chairs, who serve staggered four-year terms. A Co-chair may be re-appointed, and shall only be removed by the members for cause, after consultation with COSEWIC.

One ATK Subcommittee Co-chair sits as a member of COSEWIC. The other Co-chair is the alternate ATK Subcommittee member of COSEWIC.

The duties of the Co-chairs are to:

- serve as spokespersons for the subcommittee to COSEWIC;
- manage the affairs of the subcommittee, including the chairing of meetings and designating any member of the ATK SC as the meeting chair;
- participate as members of COSEWIC;
- exercise their discretion in an independent manner; and
- participate on the Co-chairs Subcommittee of COSEWIC.

Operation

Meetings

The ATK subcommittee develops it own operations and procedures, under the authority of COSEWIC.

The person chairing an ATK Subcommittee meeting ensures that the meeting proceeds in an orderly fashion, maintaining COSEWIC's fundamental principles of independence, transparency and integrity.

The ATK Subcommittee attempts to make all decisions on the basis of consensus. Where consensus is not achievable, decisions are decided by a vote. All members except the person chairing the meeting have one vote on all matters. The meeting chair votes only in order to break a tie.

The presence of two-thirds of the ATK Subcommittee constitutes a quorum at meetings of the ATK Subcommittee. However, a decision or status recommendation related to the assessment of a species ordinarily requires input of a member from the area providing the most significant habitat for the species, or - if no such member has been appointed - of a member of an Aboriginal People traditionally associated with the species.

At the discretion of the ATK Subcommittee Co-chairs, observers may attend ATK Subcommittee meetings in whole or in part. Sensitive or personal information may be discussed in camera as requested by Subcommittee members. Observers are required to sign a waiver that prevents the sharing of sensitive knowledge without ATK SC permission,

Reporting

The ATK Subcommittee:

- provides to COSEWIC copies of its Aboriginal Traditional Knowledge Reviews and unsolicited Aboriginal Traditional Knowledge reviews. At the request of the ATK subcommittee, COSEWIC provides these documents to relevant authorities, including NACOSAR and wildlife management boards.
- reports to COSEWIC on the adequacy of the Aboriginal Traditional Knowledge content of draft, interim and final Species Status Reports.
- provides COSEWIC with recommendations concerning the status assessments of species discussed in Species Status Reports.
- provides an Annual Report of its activities to COSEWIC, which COSEWIC will make available on request. All formal reports, advice and decisions of the ATK Subcommittee are provided in writing.

ATK Review Teams

Where a species is identified by the ATK Subcommittee or by COSEWIC as requiring an assessment that includes the best available Aboriginal Traditional Knowledge, the ATK Subcommittee may establish an ATK Review Team to provide it with relevant advice. The ATK Review Team is composed of Aboriginal Traditional Knowledge holders with specific expertise concerning that species and a member from the ATK Subcommittee who is responsible for reporting to the ATK Subcommittee.

ATK Database and Reviews

The ATK Subcommittee commissions ATK reviews on species requiring an assessment, via COSEWIC's procedure for commissioning reports.

Subject to relevant privacy and intellectual property rights and Aboriginal protocols, the ATK Subcommittee maintains a database and audio and video library on Aboriginal Traditional Knowledge resulting from the ATK Reviews or other work of the Subcommittee.

Network of Aboriginal Traditional Knowledge-holders

The ATK Subcommittee will assemble a network of Aboriginal Traditional Knowledge-holders and related experts covering the various ecozones in Canada. The ATK Subcommittee will rely upon those persons:

- to participate as members of ATK Review Teams; and/or
- to provide additional and specific expertise as required to support the work of the ATK Subcommittee.

Members of this network are selected by the ATK Subcommittee and are not members of COSEWIC or of SSCs by virtue of being part of the network. Their mandate and term are specified by the ATK Subcommittee.

Support

As outlined in the Terms of Reference of COSEWIC, the COSEWIC Secretariat provides necessary administrative and technical support to the ATK Subcommittee. The ATK Subcommittee directs to the COSEWIC Secretariat any request for a copy of a Committee report, recommendation or other non-confidential document.

Review and Amendment

These Terms of Reference may be reviewed and changed by the ATK Subcommittee and COSEWIC by agreement.